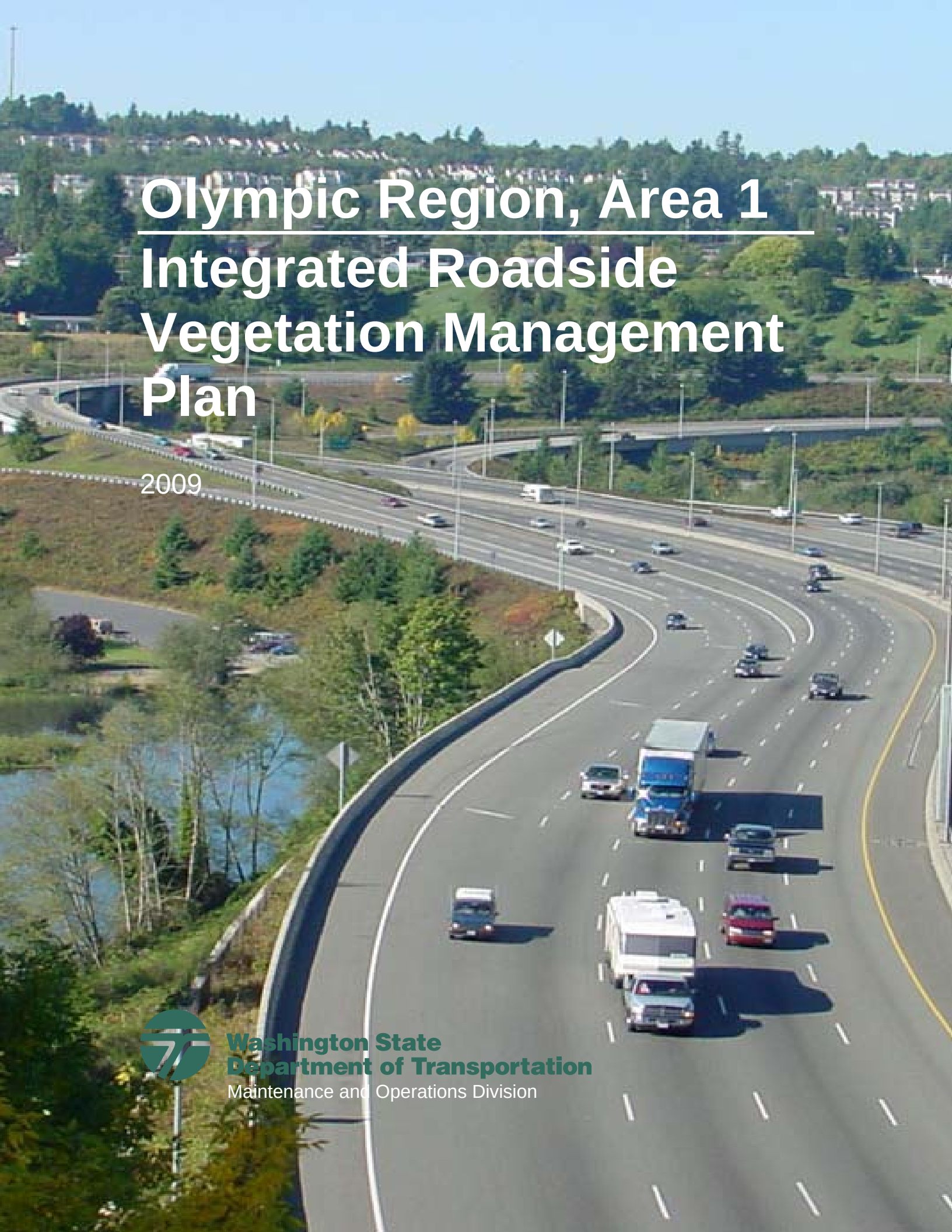

Olympic Region, Area 1
Integrated Roadside Vegetation Management Plan

2009

Washington State Department of Transportation
Maintenance and Operations Division

Table of Contents

Summary

This plan explains the Washington State Department of Transportation's (WSDOT) policy and practice for maintenance of roadside vegetation for Maintenance Area 1 within the agency's Olympic Region. This area manages vegetation within approximately 312 miles of state highway corridor, primarily in Pierce and Thurston Counties. The main corridor in the area is Interstate 5 but the area also maintains portions of other limited access highways along State Routes (SR) 16, 167 and 512, and US 101. There are many secondary routes in the area in settings ranging from urban to rural in character, some are high in scenic quality. A map of the area is included as **Figure 1** on the following page.

The primary objectives in maintenance of roadside vegetation within the area are in relation to safety of the highway users, preservation of the highway infrastructure, and control of legally designated noxious weeds where they occur on the right of way. Other considerations include protection and preservation of natural environment, preserving and enhancing the natural scenic quality of the roadside, and being a good neighbor to the many adjoining property owners. In all cases, roadside vegetation maintenance activities are planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management (IVM) and the foundation of the program.

This document and associated information management tools serve as the primary reference for maintenance of roadside vegetation in the area. Included is detailed information on agency, region, and area policies along with locations for planned routine maintenance practices, reoccurring weed infestations, sensitive areas, and other areas with special management considerations. Also included are guidelines and prescriptions for best management practices in dealing with roadside vegetation problems and opportunities. In effect, this plan supports WSDOT's compliance with state law (RCW 17.15) by implementing the principles of Integrated Pest Management for the management of roadside vegetation. It also supports WSDOT's long-range goals for the management of roadsides to:

- Create naturally stable, sustainable plant communities
- Improve effectiveness and efficiency in the control of weeds and unwanted trees and brush
- Reduce maintenance cost and herbicide use over time

This plan is organized around the major categories of roadside vegetation maintenance work. The major categories include: Zone 1 (or pavement edge maintenance), Routine Mowing, Noxious Weed Control, Nuisance Weed Control, Tree and Brush Control, and Special Maintenance Areas.

The management of roadside vegetation is a dynamic process and it is intended that this plan be continuously adapted over time based on input from a variety of sources. An integral component of the process is a database for recording IVM treatments for specific vegetation controls and locations, and to record information on follow up evaluation on these treatments. Annual area meetings will be held to discuss what is learned each year and refine the plan over time.

WSDOT is also requesting that local public and private entities with an interest in weed control and roadside vegetation management provide input on the plan and cooperate in efforts where appropriate. Additional copies of the draft plan are available online: www.wsdot.wa.gov/maintenance/vegetation/mgmt_plans.htm, hard copies can also be provided upon request. Please contact Tom Gibbs or Ray Willard at the numbers listed below for questions or comments:

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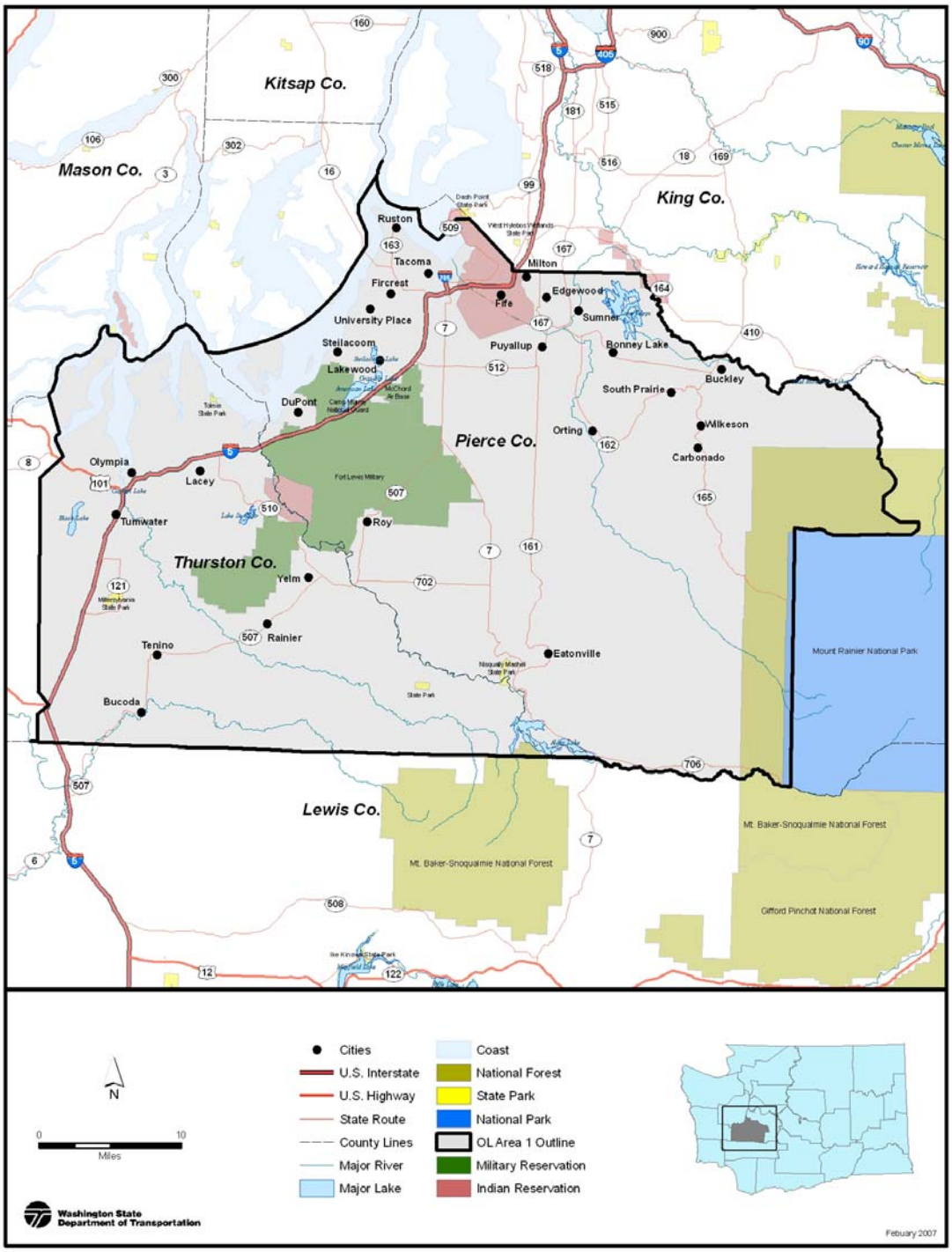


Olympic Region, Area 1 Map
Figure 1

Roadside Management Considerations

The primary objectives for maintenance of roadside vegetation are to provide for safe highway operation and to comply with legal regulations for control of noxious weeds and protection of the environment. Overall WSDOT maintenance policy and procedures for roadside vegetation are defined in Chapter 6 of the WSDOT Maintenance Manual (M51-01, March 2002) www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/MaintenanceManual.pdf

Visual Quality
It is also important to maintain appropriate visual standards in the appearance of the roadside. All maintenance activities will be conducted in a way that minimizes visual impacts such as wide spread "brown-out" from herbicides or shattered limbs from side trimming. Roadsides should look as natural as possible throughout the year. Appropriate visual quality for roadsides throughout the state is defined in the WSDOT Roadside Classification Plan (June 1996) www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/RCP.pdf

Operational Zones
WSDOT roadsides are divided into three zones for the purposes of assigning management objectives, maintenance needs, and thresholds for triggering vegetation maintenance actions. Noxious weed species designated for control by state and county law are controlled throughout all zones. Not all management zones occur along all state highways. In some cases the narrow width of the right-of-way or adjoining land-use, limits the operational zones to Zone 1 and/or a narrow Zone 2 only. Roadside vegetation management zones are illustrated in **Figure 2** below and defined as follows:

> **Zone 1** – A vegetation free gravel shoulder, where needed, is maintained as a one to three-foot wide strip to provide for key maintenance, operational, safety, and pavement and guardrail preservation needs. Zone 1 is typically maintained with an annual application of herbicides.
>
> **Zone 2** – The operational zone extends from the edge of Zone 1 or the pavement edge (if Zone 1 is not present) to a width necessary to provide for safe errant vehicular recovery, maintain sight distance at corners and intersections, and provide for other operational, safety, and environmental functions. Zone 2 is typically maintained by mowing a single pass adjacent to the pavement and through selective removal of unwanted trees and brush beyond the mowing strip.
>
> **Zone 3** – In areas with sufficient right-of-way width, a buffer or transition zone extends from Zone 2 to the right-of-way line to provide a buffer or transitional area between the highway facility and adjacent land uses. This area is maintained selectively, and to the greatest degree possible as a self-sustaining plant community, to minimize erosion as well as the growth of weeds and undesirable trees and brush.

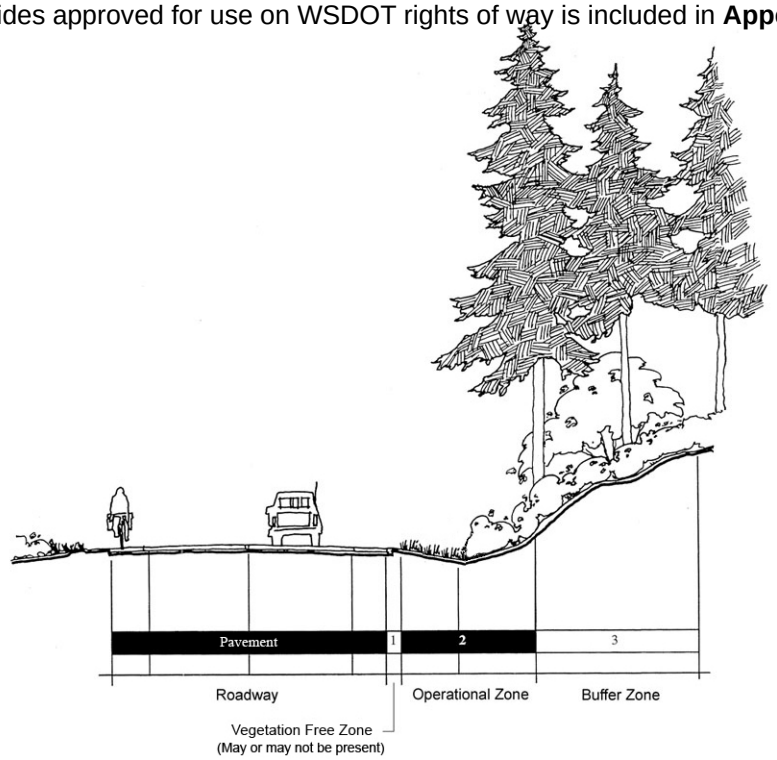
Roadside Maintenance Activities
All roadside maintenance activities are to be planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management. In every case it is essential that the results of maintenance activities are evaluated and adjusted as necessary to maximize efficiency and effectiveness. However, in some cases maintenance activities are conducted routinely on an annual basis, such as maintenance of Zone 1 and routine mowing where required.

> **Routine Maintenance Activities** – When vegetation maintenance activities are required to keep the area of roadside being treated in an annually controlled condition, activities are considered routine. This is more critical for areas of vegetated roadside near the travel lanes, edge of pavement, and around guardrails. This plan provides prescriptions and gives locations for routine maintenance activities including maintenance of Zone 1 and annual mowing.

Integrated Vegetation Management Activities – Although all activities are to be planned and conducted in accordance with the principles of IVM, many vegetation maintenance activities are intended to target a specific type or types of unwanted plants. By carefully planning and precise execution of these target specific activities it is possible over time to establish desirable vegetation, which will prevent the re-infestation of unwanted plants and reduce the need for maintenance over time. The process for determining and carrying out IVM actions is illustrated in **Figure 3** on the following page. This plan document provides information, locations, and gives prescriptions for selective control of weeds and other unwanted vegetation and for the promotion and establishment of desirable vegetation. Further information and guidance on the application of IVM is available in the document Integrated Vegetation Management for Roadsides (WSDOT, July 1997) www.wsdot.wa.gov/maintenance/pdf/IVM.pdf

Special Maintenance Areas – In some locations there are unique situations that require special consideration in determining appropriate vegetation maintenance actions. Examples of these are: environmentally sensitive areas, areas with special neighbor concerns, areas where a higher level of maintenance is expected such as gateway interchanges or formally landscaped areas, or along highways that cross tribal or federal lands. This plan provides information and guidance on the locations and unique requirements or restrictions on maintenance activities in all of these situations throughout the area.

Herbicide Use – WSDOT has conducted independent research on herbicide risk from toxicity and environmental fate, based specifically on agency application methods and use rates. Findings from this research have been used to establish an approved palette of herbicides and application limits for state highways. A complete summary of herbicides approved for use on WSDOT rights of way is included in **Appendix B**.

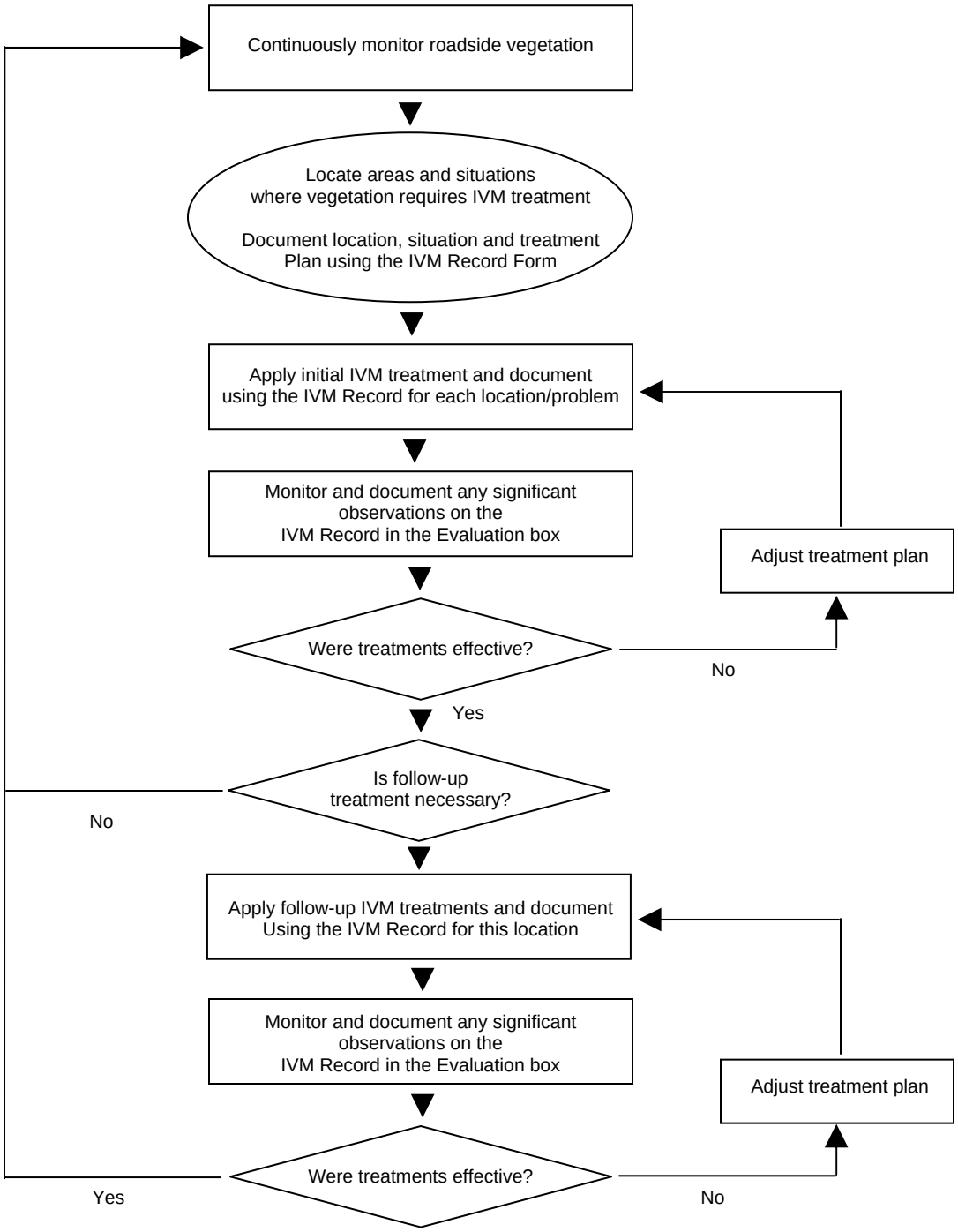


Vegetation Free Zone
Gravel Shoulder
Maintained in designated locations using mechanical and chemical methods for sight distance, to improve drainage, and to preserve pavement and roadside hardware.

Operational Zone
Low Vegetation
Maintained with mowing and IVM treatments for sight distance, safe errant vehicle recovery, and weed control.

Buffer Zone
Native/ Natural Vegetation
Where adequate right of way exists, maintained using IVM to encourage desirable vegetation in self-sustaining plant communities.

Typical Roadside Vegetation Management Zones
Figure 2



The IVM Decision-Making Process
Figure 3

Area IVM Goals

The purpose of this section is to identify the highest priority roadside vegetation management needs in Olympic Region, Area 1. Priorities are listed by specific activities and locations in relation to the three major groups for roadside vegetation maintenance performance: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed Control. This section is intended to supplement the information in the following section, ***Olympic Area 1 – Roadside Vegetation Management Plan*** which details the guidelines and methods for accomplishing the work of roadside vegetation management. The following lists essentially describe work plans for Olympic Region, Area 1 crews in 2009 and the following two to three years.

Control of Vegetative Obstructions
Since the work of this group of maintenance activities relates to the safety and operation of the highway, these items are considered first priority in terms of the overall roadside maintenance priority. Activities and locations of greatest need include:

- Will focus on locations throughout the area for removal of brush and lower side branches on trees where they block sight distance at intersections, curves, signs, hardware or where there are high animal kills

Noxious Weed Control
Noxious weeds are those species legally designated by state and county regulations for required control by all property owners. Because laws provide for fines and/or control work and billing of property owners by county administration, work under this group is considered second priority after critical safety related locations have been addressed. Species and locations are negotiated with the county weed boards on an annual basis and for 2009 include:

- Treat knapweed in early summer on I-5 MP 88 and 89
- Treat knapweed in early summer on I-5 Exit 88 SB
- Treat knapweed in early summer on I-5 in median between MP 92 and 95
- Treat sulfur cinquefoil in early summer on I-5 Exit 95
- Treat tansy ragwort in early spring on I-5 MP 96 SB
- Treat poison hemlock in early spring on I-5 MP 99 NB/SB
- Treat tansy ragwort in early spring on I-5 Exits 101, 102, 104, 107 and 111 NB/SB
- Treat tansy ragwort in early spring on I-5 MP 104.5 and 105 NB
- Treat tansy and hemlock in early spring on I-5 Exit 109 NB/SB
- Treat tansy and hemlock in early spring on I-5 in median at MP 110.5
- Treat tansy, hemlock and skeleton weed in early spring on I-5 Exit 114 NB/SB
- Treat knapweed and gorse in early summer on I-5 Exit 114 NB/SB
- Treat tansy, hemlock and skeleton weed in early spring on I-5 MP 114.93 to 115.49
- Treat knapweed in early summer on I-5 MP 114.93 to 115.49
- Treat dalmation toadflax in late summer I-5 MP 114.93 to 115.49
- Treat tansy and hemlock in early spring on I-5 Exit 118 NB/SB
- Treat dalmation toadflax in late summer I-5 I-5 Exit 118 NB/SB
- Treat tansy ragwort in early spring on I-5 Exit 119
- Treat knapweed in early summer on I-5 Exit 119
- Treat tansy ragwort in early spring on SR7 between MP 47.38 and 16.90
- Treat poison hemlock in early spring on SR507 MP 6.13 and 9.5

- Treat tansy ragwort in early spring on SR507 MP 15 to 20, 30.05, and 36.22 to 43.57
- Treat knapweed in early summer on SR507 between MP 15 and 20
- Treat tansy and hemlock in early spring on SR510 MP 3.77 and 5.9
- Treat poison hemlock in early spring on SR702 between MP 2.29 and 3.32

Nuisance Vegetation Control

Nuisance vegetation control includes control/management of weed species that are recommended but not mandated, by state and county law. It also includes work such as mowing of grass and weeds in areas where a more neatly maintained appearance is desired such as in gateway interchanges or highways in urbanized areas. Because nuisance vegetation control is lower priority after safety related and legally mandated activities, the location and work actions listed below may be postponed depending on availability of resources.

- Spot treat for re-growth of previously controlled scotch broom and blackberry on I-5 Exit 118 NB quadrants
- Cut and stump treat scotch broom and other undesirable vegetation on I-5 Exit 118 (DuPont interchange) SB quadrants

1. ROUTINE MAINTENANCE ACTIVITIES

Roadside maintenance activities are considered routine when regular periodic treatment is required to keep vegetative growth from interfering with highway operational and maintenance objectives. Typical routine maintenance activities are maintenance of a vegetation-free Zone 1 and certain types of mowing and trimming.

1.1. Maintenance of a Vegetation-Free Zone at the Edge of Pavement (Zone 1)

WSDOT is currently re-evaluating its policy for maintenance of Zone 1. Past policy and practice will be refined over the coming years in response to findings from study of long-term benefit/cost resulting from alternative treatments. For the 2009 growing season, vegetation at the edge of pavement will be managed as follows on roadsides in this maintenance area:

1.1.1. Guidelines

- Annual herbicide treatments where used in Zone 1 are intended to remove all vegetation growth in a solid band adjacent to the pavement edge. Limited re-growth of grasses and other non-weed species in the year following each treatment is acceptable.
- Vegetation-free Zone 1 is only maintained with the annual application of herbicides under all guardrail installations and throughout the area.
- Where maintained, a vegetation-free Zone 1 is 3' band width or less.
- Shoulders where a vegetation-free Zone 1 is not maintained will be managed to establish with grasses, mowed as necessary and selectively managed with herbicides to control broadleaf weeds and other vegetation.

1.1.2 Methods

- A vegetation-free Zone 1 is maintained using an annual application of combined non-selective post-emergent and pre-emergent soil residual herbicides
- Applications typically occur beginning mid-May depending on weather patterns and plant growth.
- Pavement edges will be monitored for surface drainage problems resulting from sod build-up in areas where Zone 1 is not maintained and will be graded in select locations as necessary to allow for hydraulic flow of storm water off the roadway surface.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 1 Maintenance**

1.1.3 Locations

- Zone 1 maintenance areas and methods are located in **Appendix C, Zone 1 Map**

1.2. Routine Mowing/Trimming (Zone 2)

1.2.1. Guidelines

- Routine annual mowing of roadside grass stands occurs throughout the area in at least one pass, at least once per year immediately adjacent to the edge of pavement, to prevent vegetation from encroaching on traffic operations.
- On limited access highways, routine annual mowing areas are designated as either single pass or multiple pass.

- Detailed description of mowing practice along the major freeway corridors in the area is provided in **Appendix D, Routine Mowing Plan**.
- Additional annual mowing or trimming will be conducted throughout the growing season as needed for select locations on secondary highways to preserve site distance at curves, intersections and any other highway entry points.
- In areas beyond the identified routine mowing limits, mowing is only used occasionally as part of planned IVM treatments for target specific weed and/or tree and brush control as described below in **Section 2**.
- Other areas that may be routinely mowed include grass areas in park and ride lots, narrow grass strips along highway infrastructures, and fence-lines adjacent to neighboring properties as deemed necessary by the Area Superintendent.

1.2.2. Methods

- Timing and mowing heights are set to encourage root development and health of the grass stands.
- Single pass mowing consists of one pass up to the maximum width of mowing equipment (25' max.) but may be as narrow as 6' depending on mowing equipment and the presence of existing visual lines such as ditches.
- In areas designated as multiple pass mowing roadsides are mowed out from edge of pavement to the right of way line, the edge of shrub or tree lines, or across the entire median widths.
- Interchange mowing patterns are described in **Appendix F, Special Maintenance Areas** and in **Appendix D, Routine Mowing Plan.**
- See **Appendix A, Routine Maintenance Prescriptions, Zone 2 Maintenance.**

1.2.3. Locations

- **Appendix D, Routine Mowing Map** shows locations where routine annual mowing occurs as one pass and as multiple passes. **Appendix D, Routine Mowing Plan** describes mowing priorities, timing and limits on the major corridors: I-5, US101, SR512, SR16, and SR167.

1.3. Hazard Tree Removal

1.3.1. Guidelines

- Hazard tree removal is considered a routine maintenance activity because maintenance is constantly on the look out for any trees that pose an imminent threat to the highway or traffic.
- Whenever hazard trees are identified they are routinely removed as soon as possible.
- Hazard trees may be dead, leaning, or structurally unsound. Best horticultural judgment will be used in evaluating trees that appear diseased or structurally unsound or are believed to pose a long-term threat to determine the best course of action.
- Another consideration in removal of trees is the contribution to shading in areas prone to frost and ice formation on the highway surface. When such areas are identified, the surrounding canopy may be thinned through selective removal of large trees on the right of way.

1.3.2. Methods

- Hazard trees are removed in such a manner to minimize damage and impact to the highway structure and to other healthy trees and under-story vegetation.

2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES

For all vegetation management needs not addressed through routine maintenance as described above, activities are planned and carried out using the principles of Integrated Vegetation Management (IVM) and the decision making process diagrammed on Page 5 in **Figure 3**. IVM is a coordinated decision making process that uses the most appropriate vegetation management methods and strategy, along with a monitoring and evaluation system, to achieve long term roadside maintenance goals and objectives in an environmentally and economically sound manner. The goal in utilizing the IVM approach is the effective control of unwanted vegetation and the establishment of stable, low maintenance native or naturalized plant communities that are compatible with:

- Highway maintenance and safety objectives.
- Preservation of environmental quality.
- Weed control requirements.
- The concern's of WSDOT's customers and neighbors.

Long term, the use of the IVM approach can reduce the intensity and cost of maintenance, as well as minimizing the need to use herbicides.

2.1. Integrated Vegetation Management Planning and Tracking Database

2.1.1. Guidelines

- An Integrated Vegetation Management Records database is available for use. This database is accessed through the same WSDOT network application as the Pesticide Application Records database.
- Any activities focused on treatment of a specific location and species infestation, or focused on treatment of any types of unwanted vegetation throughout the area will be documented with an initial IVM record outlining the long-term treatment plan. These same records will be updated over time whenever planned treatments are carried out, or when observations are made as to the success or failure of past treatments.
- Treatment records may be printed out and inserted into **Appendix G** of plan binders for reference.

2.2. Noxious Weed Control

2.2.1. Guidelines

- Noxious weed control is a high priority for WSDOT because of state law requiring control of designated species. Transportation rights of way are high priority locations for control of noxious weed species within the state because they cross and link so many adjacent properties and land uses.
- Whenever possible treatment of designated noxious weed species and infestations locations will be documented and treated following plans as defined by IVM record forms in the database.
- Washington State Law classifies noxious weeds in three classes: A, B, and C. All Class A species are required control wherever they occur statewide. The law allows for individual county weed boards to designate individual Class B and C weeds for control within the counties depending on how widespread and potentially harmful they are at the local level.
- For the purposes of this plan, noxious weeds are defined as species within any class designated or prioritized by the weed boards for control on state highway rights of way within the counties.

- For Olympic Region, Area 1 the following weeds designated for control are known to exist on state highway rights of way in Pierce and Thurston Counties:

  Class A
  Class A noxious weeds are non-native species with a limited distribution in the state. No Class A weeds are known to exist on WSDOT rights of way in this area.

  Class B
  Class B weeds are more widespread than Class A, with control mandated by law only if infestations are generally limited and the species are designated within the individual counties by the County Noxious Weed Control Boards. The following designated Class B species are known to exist on WSDOT right of way in Olympic Region, Area 1:

Common Name/Botanical Name	***Prc***	***Ths***
Gorse/Ulex europaeus	◆	◆
Purple loosestrife/Lythrum salicaria	◆	◆
Hawkweed sp./Hieracium sp.	◆	◆
Knotweed sp./Polygonum sp.		◆
Ragwort tansy/Senecio jacobaea	◆	◆
Rush skeletonweed/Chondrilla juncea	◆	◆
Toadflax dalmation/Linarea dalmatica	◆	◆
Hemlock, poison/Conium maculatum	◆	◆
Knapweed sp./Centaurea sp.	◆	◆

  Class C
  Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. The County Noxious Weed Control Boards also have the power to designate Class C species for control. The following designated Class C noxious weeds are known to exist on state right of way in Olympic Region, Area 1:

  Class C noxious weeds designated for control in the counties within this area and currently present within WSDOT right-of-way in this area are described on the following table:

Common Name/Botanical Name	***Prc***	***Ths***
Butterfly bush/Buddleia davidii	◆	◆

2.2.2. Methods

- Because noxious weed species are often difficult to control, herbicides treatments are often the primary, initial means of control.
- If infestations are limited to a few plants, hand pulling is also effective when the entire root system is also removed. Maintenance employees are encouraged to be aware of and look for new noxious weed occurrences, and to stop and pull these plants whenever possible.
- In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. The IVM Record and database are essential to tracking the execution and success of these control measures.

- For recommended treatments specific to noxious weed species, see **Appendix A, IVM Prescriptions, Noxious Weed Control**

2.2.3. Locations

- **Appendix E, Noxious Weed Location Map** shows locations where the most critical reoccurring infestations of noxious species exist in Olympic Region, Area 1. There are a number of noxious weed locations not currently mapped, the list of locations will be added to and updated annually.

2.3. Nuisance Weed Control

2.3.1. Guidelines

- For the purposes of this plan, nuisance weed species are defined as species listed as Class B and C weeds on the state noxious weed lists, but not required for control within individual counties.
- Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside, enhances ecological function by maintaining and enhancing native plant communities, reduces the potential for continuing spread of weed infestations, and enhances visual quality.
- Nuisance weed species will be controlled when time and budget allows.
- Priority will be given to locations with the highest chance for success including relatively new infestations and where there is potential for infestations to spread to un-infested areas of the right of way or to un-infested neighboring properties.
- Species designated as nuisance weeds in Olympic Region, Area 1 that are known to exist on the highway right of way include:

Common Name/Botanical Name
Himalayan blackberry/Rubus discolor
Scotch broom/Cytisus scoparius
Common tansy/Tanacetum vulgare
Canada thistle/Cirsium arvense
Bull thistle/Cirsium vulgare
Sulfur cinquefoil/Potentilla recta
St. Johnswort/Hypericum perforatum
Common Mullein/Verbascum thapsus

- Pictures of nuisance weeds are included for reference in **Appendix E**.

2.3.2. Methods

- Control measures for nuisance weed are dependent on the type of plant.
- Woody species such as Scotch broom and Himalayan blackberry are most effectively treated with a combination of cutting, herbicide treatments and encouragement of native vegetation.
- Perennial species such as Canada thistle are most effective controlled by succeeding years of properly timed herbicide applications.
- Annual or biennial species such as bull thistle and common tansy may also be effectively controlled with herbicide applications when

plants are in the rosette stage in spring, or by hand pulling prior to seed set.
- See **Appendix A, IVM Prescriptions, Nuisance Weed Control**.

2.3.3. Locations

- Locations for nuisance weed control activities will be identified in the **Area IVM Goals** section of the plan beginning on Page 8.

2.4. Tree and Brush Control

2.4.1. Guidelines

- Trees and brush are controlled for safety reasons including preservation of sight distance at curves and intersections, and for visibility of signs, and preventing trees with large trunk diameter from growing too close to traffic lanes.
- Native shrub and small tree species should be allowed to grow and mature in Zone 2 and selectively trimmed if they begin to encroach on site distance or other traffic operational requirements.
- Large tree species left to grow in Zone 2 and in some cases parts of Zone 3, can reach substantial size over a relatively short period of time and causing a hazard either to errant vehicle recovery, contributing to shading and winter ice formation.
- Fast-growing pioneer tree species such as big leaf maple, alder, or cottonwood, present a risk from falling on the road when mature. Wherever these trees emerge within 70' of the pavement on highway right of way, they should be removed within the first two to three years of growth or as soon as possible.
- Any tree with a trunk diameter of 4" or greater is considered a hazard for errant vehicles in Zone 2 and should be removed when young. The Design Clear Zone and is typically maintained to a width of 30' from the traffic lane edge where guardrail or concrete barrier does not exist. Actual minimum widths are determined by roadway alignment, traffic speed and volume, and cross-section of the roadside. Clear Zone widths are specified in the WSDOT Design Manual, Chapter 700.04. *www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/DesignManual.pdf*

2.4.2. Methods

- Removal of undesirable tree and brush species is typically accomplished by properly timed selective mowing, properly timed herbicide applications, hand cutting, hand pulling, or combinations thereof.
- In some locations it is most effective to mow back the majority of the existing vegetation and then selectively treat undesirable re-growth with herbicides in succeeding years, allowing desirable vegetation to grow up around and form a competitive cover.
- In some cases when tree and brush species are cut by hand, the debris can be fed through a chipper and placed back on the roadside in the form of mulch for soil enhancement and weed prevention.
- Timing of activities has a significant effect on how the vegetation grows back. Herbicide applications made by hand, directly to the cut surfaces of undesirable plants may be used to reduce or eliminate grow back.

- Chemical control methods will not be used on conifers greater than 2 feet in height and/or large dense patches of seedling trees, to avoid unnecessary negative visual impacts from “brown-out”.
- Chemical control methods will not be used on deciduous trees and shrubs until after the first of September, except for as stump treatments in conjunction with mechanical cutting to eliminate grow-back.
- When possible, safe and practical, seedling of desirable trees may be dug or pulled by hand and transplanted to areas where there growth will be beneficial and appropriate. Agreements may be signed to allow private citizens to collect seedlings for use as transplants.
- See **Appendix A, IVM Prescriptions, Tree and Brush Control**.

3. SPECIAL MAINTENANCE AREAS

Special Maintenance Areas are any locations with unique maintenance requirements or special considerations for roadside management. These areas may include interchanges, community entrances or enhancement areas, areas maintained by cities, bicycle paths, storm water retention ponds, state park land, wellheads, environmentally sensitive areas, school zones and roadsides adjacent to individual properties with current or annual no-spray agreements.

3.1. Interchanges/Intersections

3.1.1. Guidelines

- Interchange areas are sometimes developed to a greater level than general roadside areas to include storm water management facilities, pedestrian areas, and permanent vegetation designed for screening, and visual enhancements for community entrances.
- There are 60 interchanges in Olympic Region, Area 1 including 32 on I-5, 4 on US 101, 6 on SR 16, 8 on SR 512, 4 on SR 167, 3 on SR 509 and 3 on I-705. The level of roadside maintenance varies in relation to the level of development in the surrounding area. In rural forested or open settings interchanges are typically mowed along the edges of pavement and bridge abutments, with timing and frequency the same as adjacent highway sections. In urban settings such as Olympia and Tacoma many of the interchanges fall within sections of formal landscaping and are maintained at a higher level to preserve the original design intent and provide a more park like appearance.
- There are also several major at-grade intersections in the area that require special attention to maintain safe site distance.

3.1.2. Locations

- Maintenance considerations for all interchanges and key intersections are listed in **Appendix F**, along with notes describing practices for each location.

3.2. Formally Landscaped Sections

3.2.1. Guidelines

- On areas along I-5 in Olympia and Tacoma and I-705 and SR-509 in Tacoma, the roadsides have been planted with ornamental landscaping and require a higher level of maintenance than the more natural roadsides in outlying areas.

3.2.2. Methods

- These areas are typically intended to grow and develop with only the plants as initially designed and constructed. Therefore a higher level of maintenance is required to remove and prevent any and all non-planted vegetation from the areas.
- Additional trimming and pruning may be required to maintain a neat and well kept appearance.

3.2.3. Locations

- Areas considered as formally landscaped are listed by route and begin and end milepost in **Appendix F**, along with notes describing practices for each location.

3.3. Bicycle/Pedestrian Paths

3.3.1. Guidelines

- In some cases agreements were made in the project development and design process, requiring WSDOT to maintain pathways and sidewalks.
- Paths and sidewalks may require special attention from maintenance to ensure the safety of users and to enhance the appearance of the local community.

3.3.2. Locations

- Locations where sidewalks or bicycle paths are maintained by WSDOT are referenced by the adjacent route and begin and end milepost in **Appendix F**.

3.4. Urban Curb and Sidewalk

3.4.1. Guidelines

- There are several corridors within Olympic Region, Area 1 that have been recently developed in non-incorporated urban areas. Where these highways have been built for pedestrian access, in response to county zoning and development regulations areas are planted and maintained as a more formal landscape with street trees, shrub beds and turf.
- In these areas WSDOT is committed to a higher level of service and maintenance of roadside vegetation is more labor intensive.

3.4.2. Methods

- Most activities are done by hand or by smaller mowing equipment. Mowing frequency is determined by turf growth, typically requiring one pass every two weeks beginning in Aril and continuing through early July. Grass is all non-irrigated and allowed to go dormant in late summer.
- Lawns are typically fertilized annually in the fall.

3.4.3. Locations by Milepost

- Begin and end mileposts are given in **Appendix F**.

3.5. Roadside Restoration Areas

3.5.1. Guidelines

- Within Olympic Region, Area 1 there are a number of locations that have been treated with soil amendments and plantings to achieve naturally self-sustaining native plant communities in Zones 2 and 3. In many cases these areas have been planted with volunteer labor and are therefore important to the local communities. Because these areas have been accomplished outside the normal project construction process maintenance is often asked to help with weed control for plant establishment over the first three to five years. However, the intent for these areas once established is that they will be naturally self-sustaining and little to no maintenance will be required over the life of the roadside planting.

3.5.2. Methods

- Restoration areas are designed to provide a solid canopy of native shrubs and appropriate trees within three to five years after planting. During the first three to five years the most important maintenance actions include selective weed control focusing on larger woody species such as Himalayan blackberry and scotch broom. Typically, control involves hand pulling or cutting and stump treatment with herbicides. Prescriptions for control of most common weed species are provided in **Appendix A**.

3.5.3. Locations by Milepost

- Begin and end mileposts by route are given in **Appendix F**.

3.6. City Maintenance Areas

3.6.1. Guidelines

- In most cases where non-limited access highways exist within city limits, the roadside (all area outside the highway pavement and drainage systems) are maintained by the local city government.

3.6.2. Locations

- Areas where roadsides are maintained by cities are listed by route and begin and end milepost in **Appendix F**.

3.7. Herbicide Sensitive Areas

3.7.1. Guidelines

- In some situations herbicide use is limited or restricted because of legal requirements, neighbor concerns, or WSDOT imposed environmental safety precautions.
- In these locations, vegetation must be managed without the use of herbicides or with only a limited palette of herbicide types.
- In some locations, individuals have registered with Washington State Department of Agriculture as being pesticide sensitive. If these individual reside within ½ mile of the highway, the law requires that WSDOT notify them prior to application of herbicides.

3.7.2. Locations

- The list of pesticide sensitive individuals changes annually, supervisors and herbicide applicators should reference the most current list to see if any notifications are required prior to spraying in any location.
- Locations and descriptions of specific limitations on herbicide use are included in the table in **Appendix F**.

3.8. Adopt-a-Highway and Neighbor Maintained Agreements

3.8.1. Guidelines

- In some locations WSDOT has signed agreements with private citizens or neighboring businesses for maintenance of roadside vegetation.

3.8.2. Locations

- Areas with existing agreements for others to maintain a portion of the roadside are listed in **Appendix F**, along with notes describing arrangements for each location.

3.9. Storm Water Management Facilities

3.9.1. Guidelines

- Storm water management facilities include bio-filtration swales, retention ponds and infiltration ponds.
- Storm water management facilities are managed for noxious and nuisance weeds, and hazard trees following the same guidelines mentioned in previous sections. The primary objectives with regards to vegetation management within these facilities are maintenance of the functionality in terms of the designed volume of retention and water flow, and the maintenance of the surrounding fence
- Trees and brush should be cleared along both sides of the perimeter fencing for a width of approximately 8 feet as needed.
- Inlets and outfalls should be kept clear of vegetation and debris.

3.9.2. Locations

- Stormwater management facilities are listed by route and milepost in **Appendix F**.

3.10. Wetland Mitigation Sites

3.10.1. Guidelines

- Wetland mitigation sites are carefully monitored through WSDOT's Environmental Services Office for up to 10 years following their creation to ensure compliance with environmental regulation.
- In most cases vegetation in these sites is planted and established through the construction and long-term monitoring process so that once they are turned over to maintenance, actions are not required unless noxious weeds or hazardous trees become an issue.
- In cases where mitigation sites have fulfilled their original permit requirements and have been turned back to maintenance, sites should be inspected on an annual basis to determine if any repairs or weed control is necessary.

3.10.2. Locations

- All wetland mitigation sites within Olympic Region, Area 1 are listed by the nearest route and milepost, and the year scheduled for turnover to maintenance, in **Appendix F**.

3.11. IVM Treatment Sites

3.11.1. Guidelines

- As discussed in **Section 2.1**, selected sites are designated for planning, carrying out and monitoring multi-year IVM treatments for control of weeds or other unwanted vegetation.
- IVM treatment sites are documented with an initial record in the IVM Treatment Database, to identify the problem to be addressed, location(s), management goals, and integrated treatment plan.

- Records are updated each time a treatment is made, results observed, or when the treatment plan is modified based on observations.

3.11.2. Locations

- All designated IVM treatment sites within Olympic Region, Area 1 are listed by the route and milepost in **Appendix F**. This list is updated annually as new sites may be added and successfully treated sites removed.

Zone 1 Maintenance - Bareground Treatment

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Gravel shoulder	Gravel shoulder	Gravel shoulder	Gravel shoulder
MANAGEMENT GOALS:	Vegetation free	Vegetation free	Vegetation free	Vegetation free
METHOD:	Annual herbicide application	Annual herbicide application	Annual herbicide application	Annual herbicide application
EQUIPMENT:	Spray truck w/ banned width nozzles	Spray truck w/ banned width nozzles	Spray truck w/ banned width nozzles	Spray truck w/ banned width nozzles
MATERIALS:	Payload 8 oz./acre + Oust 3 oz./acre	Milestone VM 7 oz./acre + Round Up Pro 64 oz./acre	Round Up Pro 64-128 oz./acre	Landmark 4.5-7 oz./acre + Razor Pro 64 oz./acre
TIMING:	Early Spring or Fall	Early Spring	Early to mid June	Early Spring
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	Evaluate control
REMARKS:	Typically applied in a 2 to 3 ft. band.			

Zone 2 Maintenance - Tree and Brush

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Confir control	Deciduous tree and brush	Deciduous tree and brush	Deciduous tree and brush
MANAGEMENT GOALS:	Control vegetation obstruction	Control vegetation obstruction	Control vegetation obstruction	Control vegetation obstruction
METHOD:	Herbicide treatment	Herbicide treatment	Herbicide treatment	Stump Treatment
EQUIPMENT:	Spray truck w/ banned width nozzles	Spray truck w/ banned width nozzles	Spray truck w/ banned width nozzles	Dobber or Spray bottle
MATERIALS:	Garlon 3A 128 oz. and Escort 1 oz.	Milestone VM 5-7 oz. plus Garlon 3A 64 oz.	Krenite S	Garlon 3A 50/50 with water or suf. Garlon 4 50/50 with water or suf.
TIMING:	Late summer, early fall	Late summer, early fall	Late summer before leaf turn	Anytime
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	Evaluate control
REMARKS:	Avoid brown out by spraying late in the season and spray only to appropriate height.			

Noxious Weed Control - Gorse

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	
ACTION THRESHOLD:	As soon as plant appears	As soon as plant appears	As soon as plant appears	
MANAGEMENT GOALS:	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.	
METHOD:	Spot treatment w/ herbicide.	Spot treatment w/ herbicide.	Spot treatment w/ herbicide.	
EQUIPMENT:	Tank sprayer where possible, backpack spray where necessary.	Tank sprayer where possible, backpack spray where necessary.	Tank sprayer where possible, backpack spray where necessary.	
MATERIALS:	1/2 to 1 oz. Escort XP with Phase	1 to 8 quartz Garlon 4 per acre	Razor Pro 2 to10 quartz per acre	
TIMING:	Spray by June	While actively growing	While actively growing	
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertilize to reduce weeds competition.	Reapply as necessary	Reapply as necessary	
REMARKS:	Be observant of temperature when apply Garlon 4			

Noxious Weed Control - Purple Loosestrife

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	Biological Agents
ACTION THRESHOLD:	whenever present	whenever present	whenever present	whenever present
MANAGEMENT GOALS:	Suppression and eradication of listed noxious weeds	Suppression and eradication of listed noxious weeds	Suppression and eradication of listed noxious weeds	Suppression and eradication of listed noxious weeds
METHOD:	Spot treatment w/ herbicide	Spot treatment w/ herbicide	Spot treatment w/ herbicide	
EQUIPMENT:	Backpack spayer or pump can sprayer, pickup.	Backpack spayer or pump can sprayer, pickup.	Backpack spayer or pump can sprayer, pickup.	Pickup
MATERIALS:	Rodeo at 1-2 ozl/gallon, mixed with a non-ionic surfactant.	Auquaneat 4 pints/acre	Garlon 3A 6 to 8 quarts/acre	Galerucella Pusilla
TIMING:	July, August and Septemeber when mature plant appear.	July, August and Septemeber when mature plant appear.	July, August and Septemeber when mature plant appear.	During active growth
IVM FOLLOW-UP:	Monitor sites for re-growth. Reapply spot treatment as necessary.	Monitor sites for re-growth. Reapply spot treatment as necessary.	Monitor sites for re-growth. Reapply spot treatment as necessary.	Map and monitor release sites. Evaluate treatment. Establish No spray and No mow zones.
REMARKS:	Apply during actively growing at or beyond bloom stage of growth. Best results are achieved when applications are made during summer or fall months. Fall treatment must be applied before a killing frost.			

Noxious Weed Control - Hawkweed sp.

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Chemical application	Chemical application		
ACTION THRESHOLD:	Apply while actively growing	Apply while actively growing		
MANAGEMENT GOALS:	Eradication of listed noxious weeds.	Eradication of listed noxious weeds.		
METHOD:	Power sprayer	Power sprayer		
EQUIPMENT:	Spray tank	Spray tank		
MATERIALS:	Milestone VM 4 to 6 oz./acre	Transline .66 to 1 pint/acre		
TIMING:	Bolting stage	Bolting stage		
IVM FOLLOW-UP:	Multiple treatment as needed	Multiple treatment as needed		
REMARKS:				

Noxious Weed Control - Knotweed sp.

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Chemical application	Stem injection		
ACTION THRESHOLD:	Whever present (dependent on available resources)	Smaller infestations and or near water		
MANAGEMENT GOALS:	Eradication and control only if your county requires.	Eradication and control only if your county requires.		
METHOD:	Spot treatment w/ heribicde	Stem injection w/ herbicide		
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Injection equipment		
MATERIALS:	Habitat/MSO 0.5-1 lbs. per acre	Concentrated Roundup at 2%		
TIMING:	Early to late bloom between July and August	Once seasonal growth has occurred		
IVM FOLLOW-UP:	Reapply if necessary following year. Restore site w/ native vegetation.	Re-treat green stems as necessary. Restore site w/ native vegetation		
REMARKS:				

Noxious Weed Control - Tansy Ragwort

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Chemical application	Chemical application	Manual	Bio-Control
ACTION THRESHOLD:	As soon as plants appear.	As soon as plants appear.	As soon as plants appear.	
MANAGEMENT GOALS:	Eradication and control if required by county.	Eradication and control if required by county.	Eradication and control if required by county.	Eradication and control if required by county.
METHOD:	Spot treatment w/herbicide	Spot treatment w/herbicide	Hand removal. May include cut stem.	
EQUIPMENT:	Tank spayer where possible, backpack spayer where necessary.	Tank spayer where possible, backpack spayer where necessary.		
MATERIALS:	Escort 1/2 to 1 oz./acre	Milestone VM 5 to 7 oz./acre	None required. Round -up in spray bottle for cut stem.	Flea beetle/Cinebar Moth
TIMING:	Spray by May	Spray by June	Pull by June	
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertlize to reduce weed competition.	Reapply as necessary. Seed and fertlize to reduce weed competition.	Repeat as necessary. Seed and fertlize to reduce weed competition.	
REMARKS:				

Noxious Weed Control - Rush Skeletonweed

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Chemical application	Chemical application		
ACTION THRESHOLD:	Whever present (dependent on available resources)	Whever present (dependent on available resources)		
MANAGEMENT GOALS:	Eradication of noxious weed	Eradication of noxious weed		
METHOD:	Broadcast spray	Broadcast spray		
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.		
MATERIALS:	Milestone VM 5 to 7 oz./acre	Habitat 3 to 4 oz./acre		
TIMING:	Early growth stage	Early growth stage		
IVM FOLLOW-UP:	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.		
REMARKS:				

Noxious Weed Control - Dalmation Toadflax

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	
ACTION THRESHOLD:	As soon as plants appear.	As soon as plants appear.	As soon as plants appear.	
MANAGEMENT GOALS:	Eradication and control only if your county requires.	Eradication and control only if your county requires.	Eradication and control only if your county requires.	
METHOD:	Spot treatment w/ heribicde	Spot treatment w/ heribicde	Spot treatment w/ heribicde	
EQUIPMENT:	Backpack sprayer or spray bottle, pickup, etc.	Backpack sprayer or spray bottle, pickup, etc.	Backpack sprayer or spray bottle, pickup, etc.	
MATERIALS:	Telar at label rates w/ silicon based surfactant at 2 to 3 oz./acre	Escort 1 to 2 oz./acre	Plateau 12 oz./acre with methylated seed oil	
TIMING:	When in bloom between June and August	When in bloom between June and August	Apply in the fall	
IVM FOLLOW-UP:	Reaply as necessary. Seed and fertlize to reduce weed competition.	Reaply as necessary. Seed and fertlize to reduce weed competition.	Reaply as necessary. Seed and fertlize to reduce weed competition.	
REMARKS:				

Noxious Weed Control - Poison Hemlock

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Chemical application	Hand removal	Chemical application	Chemical application
ACTION THRESHOLD:	When plants appear	When plants appear	When plants appear	When plants appear
MANAGEMENT GOALS:	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.
METHOD:	Spot treatment w/ herbicide	Hand removal. Remove plant from site	Spot treatment w/ herbicide	Spot treatment w/ herbicide
EQUIPMENT:	Backpack sprayer, pickup etc.	Labor, transporation	Backpack sprayer, pickup etc.	Backpack sprayer, pickup etc.
MATERIALS:	Telar 1 to 3 oz.	None required	Excort 1 to 2 oz./Phase	1 -2 percent per acre Glyphosate
TIMING:	Spray by April	Pull by Arpil	Apply to actively growing plan	Treat at bud to full bloom stage of growth
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertilize to reduce weed competition.	Repeat as necessary. Seed and fertlize to reduce weed competition.	Repply as necessary	Reapply as necessary
REMARKS:	Use a nonionic surfactant or silicone surfactant			

Noxious Weed Control - Knapweed sp.

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application	Manual	
ACTION THRESHOLD:	As soon as plants appear.	As soon as plants appear.		
MANAGEMENT GOALS:	Eradication and control if required by your county.	Eradication and control if required by your county.	Eradication and control if required by your county.	
METHOD:	Spot treatment w/ herbicide	Spot treatment w/ herbicide is most affective.	Hand removal. Roots must also be removed. Remove plant from site.	
EQUIPMENT:	Tank sprayer where possible, backpack sprayer where necessary	Tank sprayer where possible, backpack sprayer where necessary.	Labor, transporation	
MATERIALS:	Milestone 5 to 7 oz./acre	Transline .66 to 1.33 pints/acre	none required	
TIMING:	Early budding stages	Early budding stages	Early budding stages	
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertlize to reduce weed competition.	Reapply as necessary. Seed and fertlize to reduce weed competition.	Repeat as necessary. Seed and fertlize to reduce weed competition.	
REMARKS:				

Noxious Weed Control - Butterfly Bush

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	
ACTION THRESHOLD:	Whever present	Whever present	Whever present	
MANAGEMENT GOALS:	Eradication	Eradication	Eradication	
METHOD:	Cut Stump	Broadcast spray	Broadcast spray	
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Power Spray	Power Spray	
MATERIALS:	Garlon 4 50/50 with MSO	Garlon 3A 64 oz./acre	Crossbow 64 oz./acre	
TIMING:	Late season	Early season to Mid season	Early season to Mid season	
IVM FOLLOW-UP:	Re-cut/treat as necessary.	Reapply if needed	Reapply if needed	
REMARKS:				

Nuisance Weed Control - Himalayan Blackberry

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Chemical application	Mechanical application		
ACTION THRESHOLD:	Whever present (dependant on resources)	When resources are available.		
MANAGEMENT GOALS:	Control and eradicate if county requires.	Minimize populations and prevent further spead of weed.		
METHOD:	Foliar treatment w/ herbicide	Mechanical control with follow-up cut stump treatment.		
EQUIPMENT:	Truck mounted sprayer where possible, backpack spayer where necessary.	Mower or hand labor, backpack spayer or spray bottle where necessary.		
MATERIALS:	Krenite 1.5-6 gallons/acre	Crossbow 1.25-1.5 gallons/acre		
TIMING:	In the Fall, after berries drop.	After mowing, in the fall.		
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertilize or plant to restore native plant community	Re-cut/treat as necessary. Seed and fertilize or plant to restore native plant community.		
REMARKS:				

Nuisance Weed Control - Scotch broom

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Chemical application	Manual application	Mechanical application	Bio-Control
ACTION THRESHOLD:	Whever new infestations occur (dependant on available resources)	Wherever present (dependant on available resources)	When resources are available.	When ever present
MANAGEMENT GOALS:	Minimize populations and prevent further spread of weed.	Minimize populations and prevent further spread of weeds.	Minimize populations and prevent further spread of nuisance weeds.	Minimize spread
METHOD:	Foliar treatment w/herbicide.	Hand pull	Mechanical control with follow-up cut stump treatment.	Bio-Control
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Weed wrench option, brown brush monitor	Mower, backpack sprayer where necessary.	Truck
MATERIALS:	Garlon 3A at 2 quartz with Escort 2 oz. with Phase per acre	Garlon 4 mix 2 to 1 with crop oil	Garlon 3A at 1 to 1 with water or surfactant	Exapionfuscirostre
TIMING:	Apply during actively growing season	Anytime	After mowing	release when actively growing.
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertilize or plant to restore native plant community.	Reapply as necessary. Seed and fertilize or plant to restore native plant community.	Re-cut/treat as necessary. Seed & fertilize or plant to restore native community.	Evaluate, redeploy if necessary
REMARKS:				

Nuisance Weed Control - Common Tansy

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Whever present	Whever present	Whever present	
ACTION THRESHOLD:	Whever present	Whever present	Whever present	
MANAGEMENT GOALS:	Eradication	Eradiction	Eradiction	
METHOD:	Foliar treatment. Cut stem treatment.	Foliar treatment	Foliar treatment	
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.	
MATERIALS:	Telar 1 to 3 oz./acre	Escort 1 to 2 oz./acre	Milestone VM 3 to 5 oz./acre	
TIMING:	Anytime	Apply to actively growing vegetation in the Spring	Apply to actively growing vegetation in the Spring	
IVM FOLLOW-UP:	Re-cut/treat as necessary.	Retreat as necessary	Retreat as necessary	
REMARKS:				

Nuisance Weed Control - Canada Thistle

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	Bio-Control
ACTION THRESHOLD:	Wherever present	Wherever present	Wherever present	Wherever present
MANAGEMENT GOALS:	Eradication and control of selected nuisance weeds and brush.	Eradication and control of selected nuisance weeds and brush.	Eradication and control of selected nuisance weeds and brush.	Eradication and control of selected nuisance weeds and brush.
METHOD:	Foliar treatment w/ herbicide	Foliar treatment w/ herbicide	Foliar treatment w/ herbicide	
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.	
MATERIALS:	Transline at 2/3 - 1 1/3 pint/acre	Milestone VM 5-7 oz./acre	Telar XP 1-3 oz./acre	Rhinocyllus Conicus
TIMING:	Apply from rosette to bud stage to actively growing thistle	Pre bud stage	Apply to the bud at bloom stage	Early growing season
IVM FOLLOW-UP:	Repeat annually as necessary	Apply before first frost	Apply before first frost	Redeploy as needed
REMARKS:	For most effective control, apply as a broadcast treatment to the entire infested area.			

Nuisance Weed Control - Bull Thistle

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	Bio-Control
ACTION THRESHOLD:	Wherever present	Wherever present	Wherever present	
MANAGEMENT GOALS:	Eradication and control of selected nuisance weeds and brush.	Eradication and control of selected nuisance weeds and brush.	Eradication and control of selected nuisance weeds and brush.	Eradication and control of selected nuisance weeds and brush.
METHOD:	Foliar treatment w/ herbicide	Foliar treatment w/ herbicide	Foliar treatment w/ herbicide	Bio-Control
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.	Truck mounted sprayer where possible, backpack sprayer where necessary.	
MATERIALS:	Transline at 2/3 - 1 1/3 pint/acre	Milestone VM 3 to 5 oz. per acre	Telar XP 1-3 oz./acre	Urophora Stylata
TIMING:	Apply from rosette to bud stage to actively growing thistle	Apply to young actively growing weeds.	Apply to young actively growing weeds.	Early growing stage
IVM FOLLOW-UP:	Repeat annually as necessary	Repeat annually as necessary	Repeat annually as necessary	Reapply as necessary
REMARKS:				

Nuisance Weed Control - Sulfur Cinquefoil

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	
ACTION THRESHOLD:	When resources are available.	When resources are available.	When resources are available.	
MANAGEMENT GOALS:	Minimize populations,prevent further spread of nuisance weeds.	Minimize populations,prevent further spread of nuisance weeds.	Minimize populations,prevent further spread of nuisance weeds.	
METHOD:	Foliar treatment, mechanical.	Foliar treatment	Foliar treatment	
EQUIPMENT:	Truck mounted sprayer where possible, backpack spayer where necessary, mower.	Truck mounted sprayer where possible, backpack spayer where necessary, mower.	Truck mounted sprayer where possible, backpack spayer where necessary, mower.	
MATERIALS:	Crossbow 128 oz./acre	Milestone 4 to 7 VM oz./arce	Escort 1 to 2 oz./acre	
TIMING:	Spring	Spring	Spring	
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertilize or plant to restore native plant community.	Reapply if necessory	Reapply if necessory	
REMARKS:				

Nuisance Weed Control - St. Johnswort

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application		
ACTION THRESHOLD:	When resources are available.	When resources are available.		
MANAGEMENT GOALS:	Minimize populations and prevent further spread of nuisance weeds.	Minimize populations and prevent further spread of nuisance weeds.		
METHOD:	Foliar treatment, mechanical.	Foliar treatment, mechanical.		
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary, mower.	Truck mounted sprayer where possible, backpack sprayer where necessary, mower.		
MATERIALS:	Milestone VM 5 to 7 oz./acres	1-2 oz./acre Escort plus Phase		
TIMING:	Apply after weeds emerge	Apply after weeds emerge		
IVM FOLLOW-UP:	Reapply as necessary	Reapply as necessary		
REMARKS:	Repeat application as needed			

Nuisance Weed Control - Common Mullein

	OPTION 1			
TREATMENT TYPE:	Chemical application			
ACTION THRESHOLD:	Whe resources are available.			
MANAGEMENT GOALS:	Minimize population and prevent further spread of nuisance weeds.			
METHOD:	Foliar treatment, mechanical			
EQUIPMENT:	Truck mounted sprayer where possible, backpack spayer where necessary, mower.			
MATERIALS:	7oz./acre Milestone VM			
TIMING:	Spring			
IVM FOLLOW-UP:	Reapply as necessary. Seed and fertlize or plant to restore native plant community.			
REMARKS:				

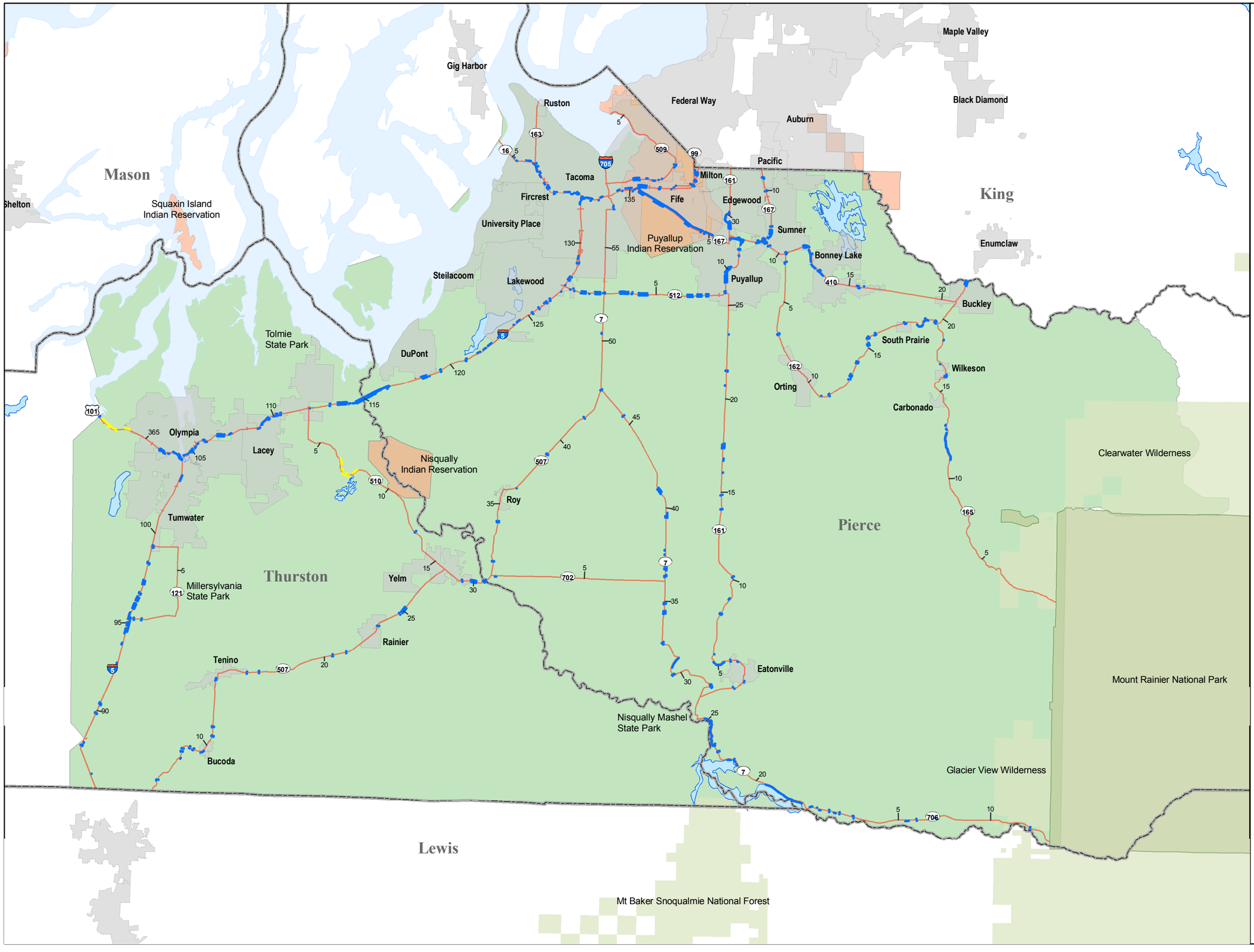
Herbicides Approved for Use on WSDOT Rights of Way

When making herbicide applications:
1. Always read and follow product labels
2. Always use personal protective equipment when mixing, loading, and applying

Chemical Name	***Product Name(s)***	***Where Used***	***How/Why Used***	***Notes/Recommendations***	***Restrictions***	***Cautions***
2,4-D	Weedar 64 Amine 4 Veteran 720 Curtail WeedDestroy Platoon Crossbow Escalade Weedmaster Solution Savage Weedone LV4	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Ester and acid formulations of 2,4-D may provide a good alternative to amine formulations. A number of the 2,4-D products come premixed with other herbicides.	Amine formulations of 2,4-D are restricted for use within 60' of all water	Amine formulations cause irreversible eye damage and are highly toxic to rainbow trout. All 2,4-D products pose risks when applied near grapes and other sensitive crops.
Bromacil	Krovar 1 DF Hyvar	Zone 1	Nonselective pre-emergent grass and weed control	Krovar and Hyvar are premixed with diuron	Westside - Restricted for use Eastside - Krovar restricted for use within 60' of all water	Bromacil is potentially mobile in soil, use caution if rain is possible.
Bromoxynil	Buctril 2EC BroClean Brox 2E	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Effective broadleaf weed control without grass seed suppression	Westside - Restricted for use Eastside - Restricted for use within 60' of all water	Highly toxic to fresh water fish
Chlorsulfuron	Telar XP Landmark XP	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Product highly effective on Canadian thistle and horsetail. Landmark is premixed with Oust.	None	None
Clopyralid	Transline Curtail Pathfinder	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Curtail is premixed with 2,4-D, Pathfinder is premixed with triclopyr	Curtail and Pathfinder are restricted for use within 60' of all water because of mixture with other restricted herbicides.	Curtail contains 2,4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout
Dicamba	Vanquish Veteran 720	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Vanquish is the dicamba formulation without 2,4-D	Veteran 720 is restricted for use within 60' of all water because of 2,4-D amine content	Veteran 720 contains 2-4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout
Dichlobenil	Norosac 4G Casoron	Ornamental planting beds	Pre-emergent weed control in ground cover beds. Post emergent control of grasses.	Highly effective for pre-emergent control of unwanted weeds in ornamentals	Restricted for use within 60' of all water	Dichlobenil is highly toxic to aquatic insects
Diflufenzopyr	Overdrive	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	None	None	None
Diuron	Karmex Diuron 4 L Diuron 80 DF	Zone 1	Nonselective pre-emergent grass and weed control	Cost effective weed control for Zone 1 in Eastern Washington	Westside - Restricted for use Eastside - Restricted for use within 60' of all water	Highly toxic to fish.
Flumioxazin	Payload	Zone 1	Nonselective pre-emergent grass and weed control	Second year of use in zone 1, still evaluating	Restricted for use within 60' of all salt water	Highly toxic to estuarine invertebrates
Fluroxypyr	Vista	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	None	None	Highly toxic to Eastern Oyster, high surface runoff potential
Fosamine	Krenite S	Tree and brush control in Zones 2 & 3	Selective broadleaf treatment	Effective broadleaf tree control without visual impacts	None	None
Glyphosate	Roundup Pro Razor Pro Buccaneer Aquaneat Rodeo Aquamaster	Zone 1, spot spray around shrub and tree plantings, aquatic weed control (Rodeo, Aquamaster)	Nonselective control of all vegetation	Rodeo, Aquamaster and Aquaneat are approved for use in or over water. Aquatic versions of glyphosate products are approved for use with NPDES permit.	None	None
Imazapyr	Arsenal Habitat	Zone 1	Pre and post-emergent non-selective control of all vegetation	Habitat is an aquatic version of Arsenal - good alternative to glyphosate in certain cases	None	High surface runoff potential, potentially mobile in soil if rain is possible.
Isoxaben	Gallery 75DF	Turf & Ornamental	Pre-emergent weed control in ground cover beds	Works well by itself or with Ronstar	Restricted for use within 60' of all water	High surface runoff potential
Metsulfuron-methyl	Escort XP Metsulfuron Methyl 60 DF	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf and conifer treatment	None	None	None
Norflurazon	Predict	Zone 1	Pre-emergent Weed control in Zone 1 and ground cover beds	Good Zone 1 product but may be difficult to keep in suspension	Restricted for use within 60' of all water	High surface runoff potential
Oryzalin	Oryzalin A.S. Surflan A.S	Zone 1 Ornamental planting beds	Pre-emergent Weed control in Zone 1 and ground cover beds	Product requires additional rinsing to thoroughly remove residues from empty container	Restricted for use within 60' of all water	Highly toxic to fish
Oxadiazon	Ronstar G Ronstar WSP	Turf & Ornamental	Pre-emergent weed control in ground cover beds	Works well by itself or with Gallery	Restricted for use within 60' of all water, gardens, plants bearing edible fruit	Highly toxic to fish
Pendimethalin	Pendulum 2G Pendulum Aqua	Zone 1 Turf & Ornamental	Nonselective Pre-emergent grass and weed control	None	Westside - Restricted for use Eastside - Restricted for use within 60' of all water	Highly toxic to fish, high potential for loss on eroded soil
Picloram	Tordon	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Highly effective for conifer and broadleaf weed control in Eastern Washington	Westside - Restricted for use Eastside - Restricted for use within 60' of all water	Highly mobile in soil and readily adsorbed through roots of desirable trees
Pyraflufen	Edict	Noxious and nuisance weed control, Zones 2 and 3	2,-4-D substitute, effective on Kochia, Russian thistle	Effective with Roundup for Kochia control	Restricted for use within 60' of all water	Irreversible eye damage, highly toxic to Rainbow Trout
Sulfentrazone	Portfolio	Zone 1	Nonselective pre-emergent grass and weed control	New product available for use in 2006	Westside - Restricted for use Eastside - Restricted for use within 60' of all water	High surface runoff potential, potentially mobile in soil if rain is possible.
Sulfometuron-methyl	Oust Landmark XP	Zone 1	Nonselective pre/post emergent grass and weed control	Landmark is premixed with Telar	None	None
Tebuthiuron	Spike 80DF	Zone 1	Nonselective pre-emergent grass and weed control	None	Westside - Restricted for use Eastside - Restricted for use within 60' of all water	High surface runoff potential, potentially mobile in soil if rain is possible.
Triclopyr Amine	Garlon 3A	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	None	None	Irreversible eye damage
Triclopyr Ester	Garlon 4 Crossbow Pathfinder	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well for invert applications. Crossbow is premixed with 2,4-D, Pathfinder with clopyralid	Restricted for use within 60' of all water	Highly toxic to fish

Appendix C:

Olympic Region Area 1
Zone 1 Maintenance
Map 1 of 1



Legend

- State Route
- Aquatic Herbicide
- Zone 1
- 75 Mile Post
- State Park
- County Boundaries
- Major Lakes
- Incorporated Cities
- Coast
- Indian Reservations
- National Park
- National Forest
- OLarea1

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Miles

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This plan describes the limits of routine annual mowing for limited access highways within Maintenance Area 1 in the Olympic Region. The areas that are routinely mowed are intended to be maintained as grass stands. Any mowing beyond annually mowed areas will be done selectively on an as needed basis, when planned as part of Integrated Vegetation Management (IVM) treatments for control of weeds and/or undesirable brush and trees.

General Guidelines for Annual Mowing Areas

1) Annual routine mowing can begin as early as the first part of May starting with areas or locations with sight distance and safety concerns, and in designated gateway interchanges and landscape areas. These areas may be mowed again as needed throughout the summer as time and budgets allow. The goal in these areas is to maintain a mowed appearance throughout the year.
2) All other roadside areas designated for routine mowing will be mowed once per year once the majority of seasonal growth has taken place typically around the end of June of first of July. The goal in these areas is to provide added highway delineation and to prevent the establishment of unwanted brush and trees along the edge of pavement.
3) Mowing height should be set at a minimum of 6 inches.
4) Avoid mowing steep slopes or wet areas with equipment that may result in tearing or rutting of the grass stand. Any areas bare soil is exposed from mowing practices or vehicles leaving the roadway should be re-seeded with grass the following fall or spring whenever possible.
5) When mowing around or next desirable shrubs that do not impact sight distance of highway safety, leave a 3 to 6 ft. buffer if possible to allow these plant populations to expand over time.

Gateway Interchanges and Landscape Mowing Areas

1) The following interchanges will be mowed out completely, beginning no earlier than the first of May, from edge of pavement to shrub/tree or fence lines, except where slopes are greater than 2:1. These areas may be mowed two or more times throughout the spring and summer to maintain a year-round mowed appearance.

    I-5: All interchanges between SR-12 (Exit 88) and Tumwater Blvd. (Exit 101), Marvin Rd. (Exit 111)

    Center Dr. (Exit 118, NB quadrants only)

    All interchanges between Steilacoom-DuPont Rd. (Exit 119)

    38th St. (Exit 132)

    Portland Ave. (Exit 134)

    US-101: All interchanges

    SR-512: All interchanges

2) Grass within the following designated landscape areas will be mowed beginning no earlier than the first of May. These areas may be mowed two or more times throughout the spring and summer to maintain a year-round mowed appearance.

    I-5: Adjacent to Maytown and Scatter Creek rest areas roadsides will be mowed out from edge of pavement to fences or existing shrub and tree lines from the beginning of the off-ramps to the ends of on-ramps.

    Throughout the landscaped areas in Tumwater, Olympia, and Lacey, all grass in-slopes will be mowed to the ditch-line or edge of shrub beds.

General Roadside Mowing Areas

1) The following interchanges will be mowed one pass only, beginning no earlier than the first of May, along the edge of pavement, except where slopes are greater than 2:1. The width of mowing pass in these cases is determined by the equipment being used and will only extend to the bottom of the ditch-line or fill slope where present. These areas may be mowed two or more times throughout the spring and summer to maintain a year-round roughly mowed appearance or they may be mowed just once per year, sometime in late June or in July.

   I-5: Mounts Rd. (Exit 116), (this interchange is built on loose sandy soils susceptible to damage from mowers)

   All interchanges through Fife between SE. 20th St. (Exit 136) and SR-99 (Exit 137), (these interchanges all have perpetually wet interior quadrants).

   SR-16: All interchanges and much of this section is under construction. Mowing will be as needed in areas that are available.

2) Road shoulders in all other areas, both outside shoulders and median, will be mowed one time per year in either single or multi-pass widths as shown on the area map in this appendix and described below. Mowing of these areas will be timed to begin once top growth on grasses has matured and seed heads have developed, but no earlier than the first of June. The goal is to have all general roadside mowing areas completed by the end of July. Width of mowing in areas designated as single pass will be determined by the width of mowing equipment. Outside shoulders adjacent to steep (2:1 or greater) cut slopes will only receive one mowing pass adjacent to pavement. Steep fill slopes behind guardrail will only be mowed if accessible, and otherwise treated with IVM for control of unwanted vegetation.

   I-5: Lewis County line to the Tumwater Blvd. interchange (Exit 101): Outside shoulders will be mowed one pass, median where it exists will be mowed out completely

   Martin Way interchange (Exit 109) to 38th St. interchange (Exit 132): Outside shoulders will be mowed out to shrub/tree or fence line, medians where grass areas exist (and accessible) will be mowed out completely or to the shrub/tree line if one exists.

   SR-16: While this corridor is under construction it will receive one pass mowing only as needed and where sections are not under contract.

   SR-167: Outside shoulders will be mowed one pass, medians where grass areas exist (and accessible) will be mowed out completely or to the shrub/tree line if one exists.

   SR-410: Outside shoulders will be mowed one pass, medians where grass areas exist (and accessible) will be mowed out completely or to the shrub/tree line if one exists.

   SR-512: Outside shoulders will be mowed one pass, medians where grass areas exist (and accessible) will be mowed out completely or to the shrub/tree line if one exists.

Appendix D:

Olympic Region Area 1
Mowing Maintenance
Map 1 of 1

Mason
Squaxin Island Indian Reservation
Dash Point State Park
Ruston
Federal Way
Auburn
Muckleshoot Indian Reservation
King
Tacoma
Fircrest
Fife
Milton
Pacific
Edgewood
Sumner
Puyallup Indian Reservation
Bonney Lake
Puyallup
Lakewood
Buckley
South Prairie
Tolmie State Park
DuPont
Orting
Wilkeson
Carbonado
Olympia
Lacey
Tumwater
Nisqually Indian Reservation
Clearwater Wilderness
Roy
Pierce
Millersylvania State Park
Thurston
Yelm
Rainier
Tenino
Eatonville
Mount Rainier National Park
Nisqually Mashel State Park
Bucoda
Glacier View Wilderness
Lewis
Mt Baker Snoqualmie National Forest

Legend

- As Needed
- Multi Pass
- Single Pass
- 75 Mile Post
- State Route
- State Park
- County Boundaries
- City Limits
- Major Lakes
- Coast
- Indian Reservations
- National Park
- National Forest
- OLarea1

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Miles

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Noxious Weed Identification

Designated for control in OL area 1:
(Thurston and Pierce County)

Gorse/
Ulex europaeus

Purple Loosestrife/
Lythrum salicaria

Hawkweed sp./
Hieracium sp.

*Knotweed sp./
Polygonum sp.

Tansy Ragwort/
Senecio jacobaea

Rush Skeletonweed/
Chondrilla juncea

*Designated for control in Thurston County

Noxious Weed Identification

Designated for control in OL area 1:
(Thurston and Pierce County)

Dalmation Toadflax/
Linaria dalmatica

Knapweed sp./
Centaurea sp.

*Butterfly Bush/
Buddleja davidii

Poison Hemlock/
Conium maculatum

Nuisance Weed Identification

Nuisance weeds in OL area 1:
(Thurston and Pierce County)

Himalayan Blackberry/
Rubus discolor

Scotch Broom/
Cytisus scoparius

Canada Thistle/
Cirsium arvense

Common Tansy/
Tanacetum vulgare

Mullein/
Verbascum thapsus

Bull Thistle/
Cirsium vulgare

Nuisance Weed Identification

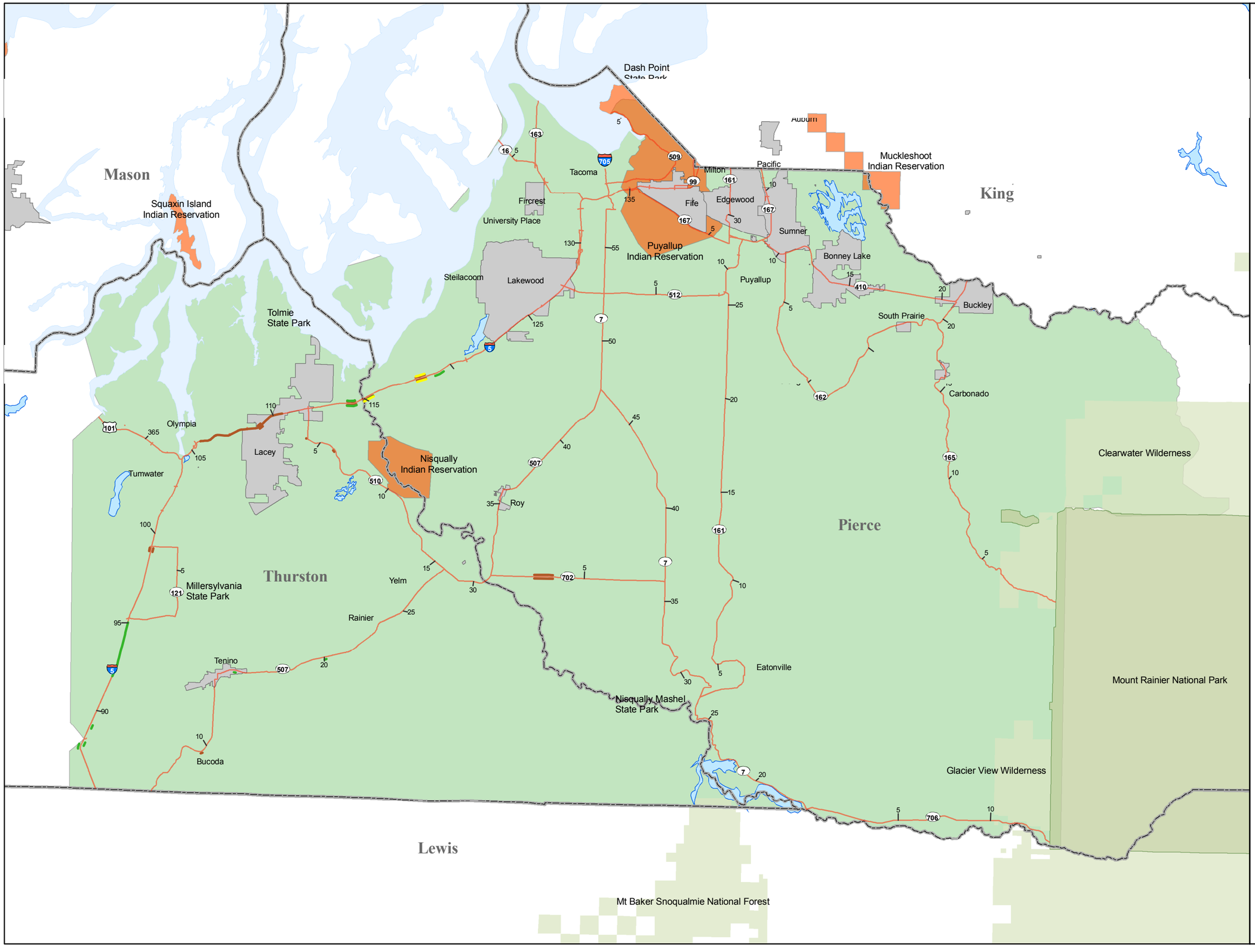
Nuisance weeds in OL area 1:
(Thurston and Pierce County)

Sulfur Cinquefoil/
Potentilla recta

St. Johnswort/
Hypericum perforatum

Appendix E:

Olympic Region Area 1
Noxious Weed Locations
Map 1 of 2



Legend

- Dalmation toadflax
- Knapweed
- Poison hemlock
- 75 Mile Post
- State Route
- State Park
- County Boundaries
- City Limits
- Major Lakes
- Coast
- Indian Reservations
- National Park
- National Forest
- OLarea1

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Miles

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Appendix E:

Olympic Region Area 1
Noxious Weed Locations
Map 2 of 2

Legend

- Gorse
- Rush skeletonweed
- Tansy ragwort
- 75 Mile Post
- State Route
- State Park
- County Boundaries
- City Limits
- Major Lakes
- Coast
- Indian Reservations
- National Park
- National Forest
- OLarea1

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2009

Mason
Squaxin Island Indian Reservation
Thurston
Lewis
Pierce
King
Dash Point State Park
Tacoma
Fircrest
University Place
Steilacoom
Lakewood
Tolmie State Park
Olympia
Lacey
Tumwater
Nisqually Indian Reservation
Millersylvania State Park
Yelm
Rainier
Tenino
Bucoda
Roy
Puyallup Indian Reservation
Fife
Milton
Pacific
Auburn
Edgewood
Sumner
Puyallup
Bonney Lake
Muckleshoot Indian Reservation
South Prairie
Buckley
Carbonado
Eatonville
Nisqually Mashel State Park
Mt Baker Snoqualmie National Forest
Glacier View Wilderness
Clearwater Wilderness
Mount Rainier National Park

Table 3.0

Locations are distinguished between the sides of the highway by right shoulder (RS) or left shoulder/median (LS) in relation to either increasing (INC) mile markers or decreasing (DEC) mile markers.
Description - Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
005	INC	RS	88.16	88.68	I/C Exit 88 to SR 12	Mow out quadrants
005	INC	RS	94.99	95.23	I/C Exit 95 Maytown Littlerock	Mow out quadrants
005	INC	RS	98.96	99.87	I/C Exit 99 Scott Lake	Mow out quadrants
005	INC	RS	100.94	101.87	I/C Exit 101 Tumwater Blvd	Mow out quadrants
005	INC	RS	102.55	103.17	I/C Exit 102 Trosper Rd	Mow out quadrants
005	INC	RS	103.43	103.63	I/C Exit 103 Deschutes Way	Mow out quadrants
005	INC	RS	104.03	104.77	I/C Exit 104 to SR 101 N.	Mow out quadrants
005	INC	RS	105.19	106.24	I/C Exit 105 State Capitol	Mow out quadrants
005	INC	RS	107.09	108.51	I/C Exit 107 Pacific Ave.	Mow out quadrants
005	INC	RS	107.99	108.53	I/C Exit 108 Sleater Kinney	Mow out quadrants
005	INC	RS	108.94	109.51	I/C Exit 109 Martin Way	Mow out quadrants
005	INC	RS	111.18	112.41	I/C Exit 111 Marvin Rd	Mow out quadrants
005	INC	RS	113.85	114.65	I/C Exit 114 Nisqually	Mow out quadrants
005	INC	RS	116.41	117.06	I/C Exit 116 Mounts Rd	Mow out quadrants
005	INC	RS	117.79	118.34	I/C Exit 118 Center Drive	Mow out quadrants
005	INC	RS	118.72	119.39	I/C Exit 119 Steilacoom-Dupont Rd	Mow out quadrants
005	INC	RS	120.48	121.42	I/C Exit 120 Fort Lewis	Mow out quadrants
005	INC	RS	122.43	123.05	I/C Exti 122 Berkley St.	Mow out quadrants
005	INC	RS	123.28	123.94	I/C Exit 123 Thorne Lane	Mow out quadrants
005	INC	RS	124.33	125.09	I/C Exit 124 Gravelly Lake Dr.	Mow out quadrants
005	INC	RS	125.61	126.21	I/C Exti 125 Bridgeport Way	Mow out quadrants
005	INC	RS	127.13	128.02	I/C 127 So. Tacom Way	Mow out quadrants
005	INC	RS	128.61	128.94	I/C Exit 128 So. 84 St.	Mow out quadrants
005	INC	RS	129.37	130.03	I/C Exit 129 S 72st.	Mow out quadrants
005	INC	RS	130.31	131.21	I/C Exit 130 Tacoma Mall Blvd	Mow out quadrants
005	INC	RS	131.35	132.82	I/C Exit 132 to SR 16	Mow out quadrants
005	INC	RS	133.41	134.17	I/C 133 Center City	Mow out quadrants
005	INC	RS	134.61	135.30	I/C Exit 134 Portland Ave.	Mow out quadrants
005	INC	RS	135.90	136.51	I/C Exit 136 A,B Port of Tacoma	Mow out quadrants
005	INC	RS	137.16	137.92	I/C Exit 137 Fife and Milton	Mow out quadrants
005	DEC	RS	137.71	137.09	I/C Exit 137 Fife and Milton	Mow out quadrants
005	DEC	RS	136.40	135.70	I/C Exit 136 Port of Tacoma	Mow out quadrants
005	DEC	RS	135.30	133.93	I/C Exit 135 Puyallup SR 167	Mow out quadrants
005	DEC	RS	132.67	131.32	I/C Exit 132 to SR 16	Mow out quadrants
005	DEC	RS	131.09	130.24	I/C Exit 130 So. 56st.	Mow out quadrants
005	DEC	RS	129.99	129.10	I/C Exit 129 S 72st.	Mow out quadrants
005	DEC	RS	128.88	128.51	Ramp on to SR 005	Mow out quadrants
005	DEC	RS	128.02	126.79	I/C 127 So. Tacom Way	Mow out quadrants
005	DEC	RS	126.17	125.47	I/C Exti 125 Bridgeport Way	Mow out quadrants
005	DEC	RS	124.95	124.23	I/C Exit 124 Gravelly Lake Dr.	Mow out quadrants
005	DEC	RS	123.92	123.28	I/C Exit 123 Thorne Lane	Mow out quadrants
005	DEC	RS	122.94	122.38	I/C Exti 122 Berkley St.	Mow out quadrants
005	DEC	RS	121.36	120.35	I/C Exit 120 Fort Lewis	Mow out quadrants

Table 3.0

Locations are distinguished between the sides of the highway by right shoulder (RS) or left shoulder/median (LS) in relation to either increasing (INC) mile markers or decreasing (DEC) mile markers.
Description - Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
005	DEC	RS	119.35	118.62	I/C Exit 119 Steilacoom-Dupont Rd	Mow out quadrants
005	DEC	RS	118.40	117.42	I/C Exit 118 Center Drive	Mow out quadrants
005	DEC	RS	117.25	116.44	I/C Exit 116 Mounts Rd	Mow out quadrants
005	DEC	RS	114.56	113.66	I/C Exit 114 Nisqually	Mow out quadrants
005	DEC	RS	112.25	111.44	I/C Exit 111 Marvin Rd	Mow out quadrants
005	DEC	RS	109.31	108.81	I/C Exit 109 Martin Way	Mow out quadrants
005	DEC	RS	108.45	107.85	I/C Exit 108 Sleater Kinney	Mow out quadrants
005	DEC	RS	107.70	106.90	I/C Exit 107 Pacific Ave.	Mow out quadrants
005	DEC	RS	106.12	104.86	I/C Exit 105 State Capitol	Mow out quadrants
005	DEC	RS	104.58	103.75	I/C Exit 104 to SR 101 N.	Mow out quadrants
005	DEC	RS	102.99	102.47	I/C Exit 102 Trosper Rd	Mow out quadrants
005	DEC	RS	101.62	100.75	I/C Exit 101 Tumwater Blvd	Mow out quadrants
005	DEC	RS	99.58	98.94	I/C Exit 99 Scott Lake	Mow out quadrants
005	DEC	RS	95.18	94.93	I/C Exit 95 Maytown Littlerock	Mow out quadrants
005	DEC	RS	88.62	88.03	I/C Exit 88 to SR 12	Mow out quadrants
005	DEC	RS	107.45	107.44	Woodard Creek	Wetland Mitigation Site
005	Both	RS	99.29	101.31	Test and Evaluation	
005	Both	RS	101.88	109.51	Landscaped Area	
005	Both	RS	114.56	114.72	Nisqually National Wildlife Refuge	
005			Exit 88		Gibson Rd. Pit Site	
005			-122.85	47.04	SR 5 Woodard Creek	Closed Out
007	Both	RS	16.81		RR crossing at grade	397177P
007	Both	RS	17.25		RR crossing at grade	397175B
007			-122.48	46.87	Nisqually Slough	Wetland Mitigation Site
007			25.67		La Grande Waste Site	
007			34.90		Tahalan Stockpile Site	
007			-122.49	46.87	SR 7 Nisqually Slough	Closed Out
016	INC	RS	0.84	3.49	Multiple Off Ramp Area	Mow out quadrants
016	INC	RS	3.66	4.13	On Ramp from Pearl St.	Mow out quadrants
016	INC	RS	4.33	4.90	I/C Exit Jackson Ave.	Mow out quadrants
016	INC	RS	2.41	2.42	19th Street Interchange	Wetland Mitigation Site
016	DEC	RS	5.01	4.15	I/C Exit Jackson Ave.	Mow out quadrants
016	DEC	RS	3.61	3.01	I/C Exit Pearle St.	Mow out quadrants
016	DEC	RS	2.88	1.65	I/C Exit 19th. St.	Mow out quadrants
016	DEC	RS	1.39	0.29	Multiple On and Off Ramp Area	Mow out quadrants
016			-122.50	47.24	SR 16 19th Street Interchange	Closed Out
099	Both	RS	0.00	0.59	City of Fife	City maintain
099	Both	RS	1.18	5.70	City of Milton	City maintain

Table 3.0

Locations are distinguished between the sides of the highway by right shoulder (RS) or left shoulder/median (LS) in relation to either increasing (INC) mile markers or decreasing (DEC) mile markers.
Description - Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
101	INC	RS	362.28	362.79	Exit Ramp to Shelton and Aberdeen	Mow out quadrants
101	INC	RS	363.96	364.39	On ramp from Everygreen Parkway	Mow out quadrants
101	INC	RS	365.03	365.90	I/C Exit Black Lake Blvd	Mow out quadrants
101	INC	RS	366.17	366.88	I/C Exit to Cooper Pt. Rd	Mow out quadrants
101	INC	RS	367.15	367.33	Off ramp to SR 005 South	Mow out quadrants
101	DEC	RS	366.68	366.11	I/C Exit to Cooper Pt. Rd	Mow out quadrants
101	DEC	RS	365.92	364.80	I/C Exit Black Lake Blvd	Mow out quadrants
101	DEC	RS	364.30	364.01	Off ramp to Evergreen State College	Mow out quadrants
101	DEC	RS	362.83	362.22	I/C Exit 2nd Ave SW	Mow out quadrants
121	Both	RS	3.21	4.48	Millersylvania State Park	
121	Both	RS	2.53		RR crossing at grade	396749K
161	Both	RS	2.27	3.33	City of Eatonville	City Maintain
161	Both	RS	3.42	3.63	City of Eatonville	City Maintain
161	Both	RS	4.05	4.30	City of Eatonville	City Maintain
161	Both	RS	24.73	25.76	City of Puyallup	City Maintain
161	Both	RS	28.73	29.24	City of Puyallup	City Maintain
161	Both	RS	29.24	32.55	City of Edgewood	City Maintain
161	Both	RS	17.89		RR crossing at grade	397139F
161			11.80		"5N" Pit Site	
161			19.70		Howe Pit Site	
162	Both	RS	0.00	0.53	City of Sumner	City Maintain
162	Both	RS	8.06	10.34	City of Orting	City Maintain
163	Both	RS	0.00	2.85	City of Tacoma	City Maintain
163	Both	RS	2.85	3.08	City of Rustin	City Maintain
163	Both	RS	3.08	3.37	City of Tacoma	City Maintain
165	Both	RS	16.47	17.14	City of Wilkeson	City Maintain
165	Both	RS	20.74	21.24	City of Buckley	City Maintain
165			14.90		Carbonado Stockpile Site	
167	INC	RS	6.86	7.50	I/C Exit to Sumner	Mow out quadrants
167	INC	RS	10.38	11.17	I/C Exit to Milton	Mow out quadrants
167	DEC	RS	10.96	10.26	I/C Exit to Edgewood	Mow out quadrants
167	DEC	RS	7.12	6.68	I/C Exit to Sumner and Yakima	Mow out quadrants
167	DEC	RS	6.44	5.75	I/C Exit to Puyallup and Olympia	Mow out quadrants
167	Both	RS	4.77	5.50	City of Puyallup	

Table 3.0

Locations are distinguished between the sides of the highway by right shoulder (RS) or left shoulder/median (LS) in relation to either increasing (INC) mile markers or decreasing (DEC) mile markers.
Description - Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
410	INC	RS	9.10	9.58	I/C Exit Traffic Ave.	Mow out quadrants
410	INC	RS	10.19	10.79	I/C Exit to Orting	Mow out quadrants
410	INC	RS	10.68	10.07	I/C Exit to Orting	Mow out quadrants
410	INC	RS	11.28	11.93	I/C Exit 166th Ave.	Mow out quadrants
410	DEC	RS	11.68	11.07	I/C Exit 166th Ave.	Mow out quadrants
410	DEC	RS	9.36	9.10	I/C Exit Traffic Ave.	Mow out quadrants
410	DEC	RS	13.93	13.90	Fennel Creek	Wetland Mitigation Site
410	Both	RS	12.72	15.36	City of Bonney Lake	City Maintain
410	Both	RS	19.62	21.99	City of Buckley	City Maintain
410			13.00		Eli Hill Stockpile Site	
410			-122.17	47.18	SR 410 Fennel Creek	Closed Out
507	Both	RS	13.32	15.66	City of Tenino	City Maintain
507	Both	RS	22.20	23.31	City of Rainier	City Maintain
507	Both	RS	27.32	29.23	City of Yelm	City Maintain
507	Both	RS	35.19	36.22	City of Roy	City Maintain
507	Both	RS	31.86		RR crossing at grade	396719T
507	Both	RS	36.54		RR crossing at grade	396708F
507	Both	RS	41.76		RR crossing at grade	396698C
507			11.50		Bucoda Pit Site	
509	INC	RS	0.71	1.15	Off Ramp to Portland Ave.	Mow out quadrants
509	INC	RS	1.65	2.60	I/C Exit to Port of Tacoma	Mow out quadrants
509	INC	RS	2.37	2.38	East-West Corridor - Erdahl Ditch	Wetland Mitigation Site
509	INC	RS	3.99B	4.00B	East-West Corridor - Hylebos Creek	Wetland Mitigation Site
509	DEC	RS	2.81	1.69	I/C Exit to Port of Tacoma	Mow out quadrants
509	Both	RS	2.61		RR crossing at grade	917942N
509	Both	RS	2.66		RR crossing at grade	917941G
509			-122.39	47.25	SR 509 E-W Corridor-Erdahl Ditch	Closed Out
509			-122.36	47.26	SR 509 E-W Corridor-Hylebos Ck	Closed Out
510	Both	RS	0.01	2.83	City of Lacey	City Maintain
510	Both	RS	14.14	15.67	City of Yelm	City Maintain
512	INC	RS	0.63	1.01	I/C Exit Steele St.	Mow out quadrants
512	INC	RS	1.94	2.53	I/C Exit Pacific Ave	Mow out quadrants
512	INC	RS	3.52	4.12	I/C Exit Portland Ave.	Mow out quadrants
512	INC	RS	5.54	6.30	I/C Exit Canyon Rd	Mow out quadrants
512	INC	RS	7.85	8.38	Off Ramp to 94th Ave. E.	Mow out quadrants
512	INC	RS	8.46	9.34	I/C Exit Eatonville	Mow out quadrants

Table 3.0

Locations are distinguished between the sides of the highway by right shoulder (RS) or left shoulder/median (LS) in relation to either increasing (INC) mile markers or decreasing (DEC) mile markers.
Description - Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
512	INC	RS	9.83	10.53	I/C Exit Meridian St.	Mow out quadrants
512	INC	RS	10.84	11.42	I/C Exit Orting	Mow out quadrants
512	INC	RS	11.68	12.00	Off Ramp to Seattle and Yakima	Mow out quadrants
512	DEC	RS	12.00	11.54	On Ramp from SR 167	Mow out quadrants
512	DEC	RS	11.20	10.68	I/C Exit Pioneer Ave. E.	Mow out quadrants
512	DEC	RS	10.35	9.69	I/C Exit Meridian St.	Mow out quadrants
512	DEC	RS	9.17	7.78	I/C Exit South Hill	Mow out quadrants
512	DEC	RS	6.17	5.40	I/C Exit Canyon Rd	Mow out quadrants
512	DEC	RS	3.96	3.46	I/C Exit Portland Ave.	Mow out quadrants
512	DEC	RS	2.51	1.75	I/C Exit Pacific Ave	Mow out quadrants
512	DEC	RS	0.87	0.63	I/C Exit Steele St.	Mow out quadrants
706	DEC	RS	9.52	10	305th Ave, E to Anderson/Kernahan	Wetland Mitigation Site
706	Both	RS	0.27		RR crossing at grade	397178W
706	Both	RS	2.49		RR crossing at grade	397189J
706			9.80		Kernahan Rd. Pit Site	
706			-122.00	46.76	SR 706 305th Avenue East	Closed Out

Washington State Department of Transportation

Integrated Vegetation Management Record

Org Code	County	Date		Vegetation Management Zone(s)
		6/13/2007		☐ Zone 1 ☐ Zone 2 ☐ Zone 3

Area
SR. _____ MP _____ to MP _____

Location

Check Appropriate Boxes: ☐ NB ☐ EB ☐ SB ☐ WB

☐ Roadside ☐ Shoulder ☐ Median
☐ Landscaped Area ☐ Rest Area ☐ Park-n-Ride
☐ Interchange ☐ Bridge ☐ Ramp
☐ Mitigation Site ☐ Stormwater ☐ Yard/Stockpile

Third Party Damage ☐ Yes

Sensitive Sites ☐ Aquatic ☐ Wetlands

Target ☐ Noxious Weeds ☐ Nuisance Weeds ☐ Brush/Trees ☐ Hazard Tree ☐ Other

List Target/Species: _____

Reason for Action:
☐ Noxious Weeds ☐ Nuisance Weeds ☐ Fire Prevention ☐ Restore Native Veg. ☐ Zone 1 Pilot ☐ Aesthetic
☐ Site Distance ☐ Hazard Vegetation ☐ Customer Request ☐ Enhance Vegetation ☐ Slope Stabilization ☐ Other _____

Long term IVM plan (Describe goals/objectives and a step-by-step approach over time)

Approximate Acres to Accomplish

Activities		Planned date of Treatment	Actual date of Treatment
Manual	☐ Digging ☐ Pulling ☐ Planting ☐ Lopping ☐ Scalping ☐ Other _____		
Mechanical	☐ Axial Saw Work ☐ Tractor Brush Cutter ☐ Mower/Chain ☐ Manual Brush Cutting ☐ Tractor Mower ☐ Other		
Bio-Control	☐ Insects ☐ Pathogens ☐ Parasites Type/Species _____		
Cultural	☐ Burning ☐ Grading ☐ Seeding ☐ Fertilizing ☐ Grazing ☐ Soil Amendment ☐ Other _____		
Chemical	Record Number		

#1 Evaluation and Date

#2 Evaluation and Date

#3 Evaluation and Date

Washington State Department of Transportation

Pesticide Application

Org. Code	County	Date of Application	Start / Finish	ICP	Stores Issue Ticket Number(s)
		6/13/2007	○ AM ○ PM / ○ AM ○ PM		

Area
SR ____ MP ____ to MP ____ and MP ____ to MP ____ and MP ____ to MP ____ and MP ____ to MP ____

Check Appropriate Boxes:
☐ NB ☐ EB ☐ SB ☐ WB
☐ Roadside ☐ Landscaped Area ☐ Interchange ☐ Yard/Stockpile
☐ Shoulder ☐ Rest Area ☐ Bridge
☐ Median ☐ Park-n-Ride ☐ Ramp
☐ Spot Spray ☐ Blanket Spray
☐ Aquatic ☐ Wetlands

☐ Weeds ☐ Noxious Weeds ☐ Disease
☐ Brush ☐ Insects ☐ Other
Zone 1 ○ yes ○ no
List Pest(s):

Start Weather Conditions
Temperature ____ °F (°C) Wind (Direction From) ____ Wind (Range) ____ mph(km/h)
○ Sunny ○ Broken ○ Overcast No Rain ○ Light Scattered Showers ○ Hard Showers

Finish Weather Conditions
Temperature ____ °F (°C) Wind (Direction From) ____ Wind (Range) ____ mph(km/h)
○ Sunny ○ Broken ○ Overcast No Rain ○ Light Scattered Showers ○ Hard Showers

Tank No.	Material Name	Material Type	EPA Reg. No.	Lot Number	Product Per Acre (hectare)	Unit	Total Daily Usage	Unit

Total ____ **Acres(hectares) Treated at** ____ **gallons(liters) of spray per acre(hectare).**

Equipment Number	Tank Size 1	2	3	4	5	Calibration Date	Vehicle Speed mph(km/h)	Nozzle Pressure PSI(kPa)	Width of Spray Pattern Feet(meter)

☐ Hand/spreader ☐ Backpack ☐ Hand gun ☐ Fixed Nozzle ☐ Boom ☐ Other (Specify) ____
☐ Tank Mix (Conv.) ☐ Injection ☐ Invert

Operator Name	Operator Pesticide License No.	Operator Signature	Driver Name

Remarks

Buffer Truck Driver's Name

Pesticide Sensitivity Registration Applies: ☐ Yes ☐ No

Contact

Division of Emergency Management (1-800-258-5990) Additional Notes

DOT Form 540-506 EF Revised 1/2007 Distribution: O/C Maint. Operator Region File
Send OSC Copy Within 5 Days

Oz(l)= Ounce(s) Dry Lb= Pound
Oz(l)= Ounce(s) Liquid Ga= Gallon
Pt=Pint Qt= Quart
g= gram kg=kilogram
ml=Milliliter L= Liter

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
City of Olympia	924 7th Ave. SE Olympia, WA 98507	Michael Mucha	Public Works Director	(360) 753-8588	publicworks@ci.olympia.wa.us
City of Tumwater	555 Israel Rd. SW Tumwater, WA 98501	Jay Eaton	Public Works Director	(360) 754-4140	jeaton@ci.tumwater.wa.us
City of Lacey	420 College St. SE Lacey, WA 98509	Scott Egger	Public Works Director	(360) 491-5600	engineering@ci.lacey.wa.us
City of Tenino	149 Hodgden St. S Tenino, WA 98589	Dave Dafoe	Public Works Director	(360) 264-2368 Fax (360) 264-5772	
City of Bucoda	110 N. Maint St. Bucoda, WA 98530	Kathy Martin	Major	(360) 278-3525 Fax (360) 278-3526	bucoda@scattercreek.com
City of Rainier	102 Rochester St. Rainier, WA 98576	Ron Gibson	Public Works Director	(360) 446-2265 Fax (360) 446-2720	rainierpw@ywave.com
City of Yelm	901 Rhoton Road Yelm, WA 98597		Public Works Director	(360) 458-8499	
City of Dupont	303 Barksdale Ave. Dupont, WA 98327	Peter Zahn	Public Works Director	(253) 912-5381 Fax (253) 964-1455	pzahn@ci.dupont.wa.us
City of Lakewood	6000 Main St. SW Lakewood, WA 98499	Don Wickstrom	Public Works Director	(253) 983-7795 Fax (253) 512-2268	publicworks@cityoflakewood.us
City of Roy	216 McNaught St. S. Roy, WA 98580	Chuck Chappell	Public Works Director	(253) 843-1113	cchappell@cityofroywa.us
City of Eatonville	201 Center St. W. Eatonville, WA 98328	Vacant	Public Works Director	(360) 832-3361 Fax (360) 832-3977	
City of Steilacoom	1030 Roe St. Steilacoom, WA 98388	Mark Burlingame	Public Works Director	(253) 581-1921 Fax (253) 582-0651	
City of University Place	3715 Bridgeport Way W University Place, WA 98466	Gary Cooper	Public Works Superintendent	(253) 460-6494	gcooper@cityofup.com
City of Fircrest	115 Ramsdell St. Fircrest, WA 98466	Bill Larkin	Public Works Director	(253) 564-8901 Fax (253) 566-0762	
City of Tacoma				(523) 594-7879	pwaintrn@cityoftacoma.org
City of Fife	5411 23rd St. E. Fife, WA 98424			(253) 922-2489 Fax (253) 922-5355	
City of Puyallup	1100 39th Ave. SE Puyallup, WA 98374	Rob Andreotti	Operations & Maintenance Manager	(253) 841-5505 Fax (253) 841-5437	
City of Edgewood	2221 Meridian Ave. E. Edgewood, WA 98371	Dave Lorenzen	Public Works Director	(253) 952-3299 Fax (253) 952-3537	dave@cityofedgewood.org
City of Sumner	1104 Maple St. Suite 260 Sumner, WA 98390	Bill Shoemaker	Public Works Director	(253) 299-5700 Fax (253) 299-5539	bills@ci.sumner.wa.us
City of Bonney Lake	19306 Bonney Lake Blvd. Bonney Lake, WA 98391	Dan Grigsby	Public Works Director	(253) 447-4347 Fax (253) 826-1921	grigsbyd@ci.bonney-lake.wa.us

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
Town of South Praire	121 NW Washington St. South Praire, WA 98385	Peggy Levesque	Major	(360) 897-8878 Fax (360) 897-8717	south_praire@yahoo.com
City of Orting	P.O. Box 489 Orting, WA 98360		Public Works	(360) 893-6809	infor@cityoforting.org
City of Buckley	933 Main St. Buckley, WA 98321	John Dansby	Public Works Supervisor	(360) 829-1631 Fax (360) 829-5440	
City Wilkeson	540 Church St. Wilkeson, WA 98396	Mark Kask	City Planner	(360) 829-0790 Fax (360) 829-4292	
City of Carbonado	818 8th Ave. Carbonado, WA 98323	Robert Fleis	Parks Superintendent	(360) 829-0125 Fax (360) 829-9912	carbonado@qwest.net
Puyallup Tribe					
Thurston County	9605 Tilley Rd. SW Olympia, WA 98512	Rick Johnson	Noxious Weed Coordinator	(360) 786-5576 Fax (360) 786-5577	johnsor@co.thurston.wa.us
Pierce County	1420 E. 112th St. Tacoma, WA 98445	Sean McDougal	Noxious Weed Coordinator	(253) 798-7263 Fax (253) 798-3272	smacdougal@co.pierce.wa.us